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# Lecture.

## TRAINED NURSING.[1]

BY A. WORCESTER, A.M., M.D., WALTHAM, MASS.

LADIES AND GENTLEMEN: — I myself shall have a pleasant evening, for I have the chance of speaking upon a subject in which I am very much interested, and I take it that no pleasure can quite equal that.

I believe not only that we owe a great debt to professional nursing, but also that in no other direction can the medical profession do more to advance its own interests, and at the same time to alleviate the sum total of human suffering, than by giving attention to the nursing profession. When I think of the constantly increasing obligations that we are under to nurses, it seems to me rather strange that no more attention is paid to the question; and I think it particularly fitting in a graduate course at the Medical School that one of the younger graduates should give his testimony to this indebtedness, and point out what we can do to help the nursing profession along.

But before trying to point out what can be done by physicians to advance the interests of nurses we should follow our usual course of looking at the family history, and study the origin and development of nursing. When we hunt back for the history of our own profession we lose it of course in the Dark Ages, and we find that physicians are bound by traditions and inheritances, the origin of which are so obscure that we hardly know what reason we have for much that we do. With the nursing profession, on the other hand, its development is so recent that all has been acquired within the memory of men now living.

In 1822 a young German clergyman journeyed on foot into his parish of Kaiserwerth on the Rhine to save his poor parishioners the expense of his journey. After a few weeks' residence in his new parish he lost his church, which was sold for a debt of one of his parishioners. He then set out on foot through Belgium, the Rhenish Provinces and England, soliciting funds to regain his church; and on that journey he carried out his heart's desire of studying asylum and prison and hospital management with the view of bringing back to his parish all that was then known in the world. When he did come back to Kaiserwerth, he brought not only the gold to redeem his church, but what was of far more value, an intimate acquaintance with the methods of alleviating suffering. In 1833 in a little summer-house in his garden he founded the first nurses' training-school in the world. A couple of women agreed to devote their lives to this profession, which as yet existed only in the mind of Pastor Fliedner. In 1836 a new building was provided, and in 1886 when the semi-centennial was celebrated, there were sixty such houses and six thousand such women acknowledging their common parentage and inspiration.

In 1851 a young woman of England, determined upon doing all the good that could be done on earth, went to Kaiserwerth to learn how to relieve sickness and suffering. That was Florence Nightingale. In 1854, during the Crimean War, when the reports of the suffering of the English were so terrible, she asked for volunteers to go to the front to take care of the sick. About one hundred volunteered. That was the first corps of nurses in service in time of war. Hardly any one is ignorant of that service, and Florence Nightingale's name is immortal. Upon her return from the Crimea, so great was the gratitude of the English nation for what she had done, that a fund of fifty thousand pounds was subscribed for her personal benefit, but she devoted it to the foundation of the first training-school for nurses in England, in connection with St. Thomas's Hospital.

In spite of the fact that during our Civil War there was exhibited such tremendous need of nurses' services, there were no trained nurses in America until 1872.

In 1865 the New England Hospital for Women and Children announced as one of its purposes the training of nurses; but it was not till 1872 that the first class was started.

There had been before this several sporadic attempts at teaching nursing. In the New York Hospital there is a tablet stating that in 1798 Dr. Valentine Seaman began giving systematic instruction in nursing. In 1861, in the Women's Hospital in Philadelphia, instruction was begun, but not even there was systematic instruction begun until 1872.

We owe what we have of trained nursing in America more than to any one else to the late Dr. Susan Dimmock. She was full of such enthusiasm as the world seldom sees. She fought down in Boston the prejudice against young women of good families and otherwise fair opportunities entering such work. But I think we may say that the first training-schools at the New England Hospital and at the Women's Hospital in Philadelphia, judged by the present standard of nursing, can hardly be counted as regular training-schools, because nurses there were trained only in the care of women and children. In 1873, when the school was started at the Massachusetts Hospital, it was distinctly understood that the nurses would have employment only in the care of women and children. It was not until some years after that they were put in charge of the male wards. But so rapid has been the advance in the foundation of training-schools within these last few years, that when in the Section upon Nursing in the Chicago Conference last year the question of the numerical strength of the nursing profession was under consideration, there were reports of 150 schools, 3,250 students and nearly 5,000 graduates upon their rolls. Training-schools are now multiplying very fast; and it is easy to foresee that the time is not far distant when no considerable-sized town will be without its training-school.

The profession, however, is not nearly so far advanced here as it is abroad. In England great strides have been taken under the direct inspiration of Florence Nightingale and with the accession of strength that came from the glorious services of her early pupils, as, for instance, Mrs. Dacre Craven, who was sent in 1870 to Metz by the Empress Frederick and the Princess Alice, and who with a corps of volunteer nurses took charge of those typhus-fever wards and did most heroic service. Their hospital training-schools are better than ours, if for no other reason than that they require a longer period of training. It takes three years for the nurse in England to gain her diploma. The profession is further advanced, again, because in England a close relationship is kept between the graduate nurse and her school in after life; and, again, better than the condition of things in America, because whenever a nurse tires out, she is

[1] A lecture given in the Graduates' Course at the Harvard Medical School, October 25, 1894.

there taken care of and finally can avail herself of a pension fund for nurses, which so far has not been successfully established here.

In Germany the Protestant deaconesses have similar advantages. But we have one advantage which they have not. In Germany there are the Roman Catholic nurses and the Protestant nurses, the Roman Catholic schools and the Protestant schools. In this country all our training-schools are open upon equal terms to both Roman Catholic and Protestant, and no difference or discrimination made. And while the Protestant deaconesses and the Roman Catholic sister nurses make of prime importance the profession of their religion, and the nursing is perhaps for that reason rather a secondary object, in this country the profession of religion finds its most beautiful illustration in the work that they do. Thus the American trained nurse may be said to be more distinctly a member of a profession, for she has given herself to her work as physicians give themselves to the practice of medicine.

It is not by recounting the numerical strength of nurses that we can estimate the position and the development of the profession. That, however, needs more than passing mention, because even if we have 5,000 trained-nurses to-day we have in this country 120,000 physicians, which means only one nurse to every twenty-four physicians, or to every 15,000 of population. So the market is not already overstocked, even if trained nurses to-day are not all employed. It is very true that there were several hundred in Boston last winter unemployed. But think of the hundreds and hundreds of people who needed nurses! The fault lies in not bringing the workers to the work, and that fault rests primarily upon the medical profession, because nurses in the main await the call of physicians, and only when the medical profession understands more fully than it does to-day, how much the success of the medical profession depends on nurses, may we look forward to the bringing into the work all the nurses who are willing to work.

In trying to set before you the present condition of the nursing profession I want to picture what the nursing profession stands ready to do to-day. What as physicians may we expect nurses to do? Well, we certainly may expect this, that all our surgical material of every sort shall be kept in perfect order and in perfect aseptic condition by the trained nurses of to-day. This work demands a high degree of intelligence, considerable skill and a professional conscientiousness that only the trained nurse stands ready to give. Again, physicians may properly expect of the trained nurse of to-day that the patient about to be operated upon shall be put in perfect condition for the operation, and that the room in which the operation is to be done shall be put in complete readiness. Moreover, he may expect that after he leaves the sick-chamber the patient shall be taken care of so scrupulously that all his directions shall be minutely carried out, and that a record shall be sent to him perfect in its details, in its accuracy, and as often as he may require. In his poor practice he has the right to expect of the nurse of to-day that she shall go to the sick-room that is so filthy and forlorn that his visits seem a mockery, and shall clean that house, and bring order out of chaos. In midwifery work he has a right to expect that the trained nurse shall watch the case from the beginning of labor, send him records of its advancement, and be fully able to carry it out and do everything for the mother and child provided the case be a perfectly normal one. Now in these particulars, and they are only a few which I select here and there, the physician has a right to expect full and satisfactory service, and the trained nurse stands ready to give that service.

Now, the question comes, How is the physician to get it? The answer requires more than a passing thought. Nurses are ready to work and would be willing to work for nothing while waiting for other cases, as young physicians are glad to work for nothing while waiting for more lucrative practice. But the nurses are not in touch with the medical profession. The two professions are not estranged, because they have never been in complete harmony; and physicians must go more than half-way in securing that co-operation which will be beneficial to both professions. Just think of the disadvantage that the nurse labors under in the mere matter of registry. What if we physicians were obliged to submit to rating at the hands of nurses. Suppose we found employment only as we were called out from some central registry in the hands of a committee of nurses, where were kept the reports, which we might never have the liberty of seeing, sent in by disgruntled patients. Now that is where the nurse stands to-day. She finds employment only at the pleasure of a registry which intends to perform its duty first for the benefit of the public, and secondly of the medical profession, and lastly for the benefit of the nurses. We know very well that patients are sometimes very unreasonable, and that their complaints sometimes have very little foundation. Sometimes when nurses have tired themselves out in conscientious self-sacrifice the only thanks they get from the patients they nurse are growls and grumbles. It is unfair to the nursing profession that such complaints should be put on record without the nurses being free to defend themselves or to profit by just criticisms. This difficulty in registration in part accounts for the fact that trained nurses are not now in more general employment. Even if they want to work for nothing, they are not sure of finding suitable opportunity from the registry. They do here in Boston volunteer for gratuitous work. Under the guidance of different clergymen in the city some nurses devote several weeks each year to purely gratuitous service, and many nurses of my acquaintance would be very thankful indeed to give more service under the leadership of the medical profession if they could be at the same time learning.

And this brings us to the very touchstone of the question. The modern trained nurse is willing to do anything provided she can learn to be a better nurse by doing it. It is not generally recognized that the modern trained nurse is a professional person, guided and governed as members of the medical profession are guided and governed. She is willing to work at anything provided she can be a better nurse for that work. Of course, she is not willing to go and do absolute drudgery where there is no opportunity for earning her bread, and no opportunity for learning anything; and unless the medical profession steps forward and helps to arrange matters so that nurses shall find that opportunity for continued instruction, we have no reason to grumble if the nurses stand back and wait for lucrative cases.

There is another reason that interferes with their working. There is a popular feeling that nurses are

paid too much; and that is held to be the case by physicians who perhaps charge three or five dollars a visit, amounting to twenty or forty dollars for the week's charge. They may not have been in the sick-chamber each day more than a half-hour; but if the nurse who is there during the day and night should charge as much, it would be considered an extortion. The trained nurse comes into competition with the old untrained nurse, who was willing to go out for ten or fifteen dollars a week and was well paid. But the trained nurse can do a great deal more and is not so well paid even if paid twice as much.

Another objection to the more extended employment of the trained nurse, is the notion that she is inclined to take charge of the case, and that it is better not to tell her too much or take any steps toward extending her education lest she usurp the physician's place. That view is totally wrong because the more the nurse knows the less likely she is to usurp the responsibility of the physician. The old-time nurse was always willing to do this. She never hesitated in giving a diagnosis. I remember an old-timer taking care of a patient of mine when I was considerably in doubt as to the diagnosis, who did not seem to be the least in doubt; and while I in my ignorance did not even think of the patient's liver, she declared that the patient's "liver pin" was out of order. She had probably looked inside of a Connecticut clock, and imagined the inside of the human body was somewhat like it. I remember putting on a breast bandage, and the next day asking the patient if it did her any good. She said she didn't know whether it did or not; the nurse had whipped it off as soon as I left the house, saying that she did not approve of such things. It will be difficult in a few years to believe the stories of the old-time nurses. And now, in this transition stage, it is pretty hard for the trained nurse who is, to begin with, an intelligent woman and well educated, who has given several years to the acquirement of her profession, it is pretty hard that she should be judged and treated in the way that the old-time nurse was.

After picturing what physicians may rightly expect from the trained nurse of to-day, and mentioning the different directions in which she stands ready for service, I must pass to the question, Why cannot any physician here in Boston avail himself of such services? And the answer can best be given by asking why do they have such privileges in other places. I know of many of the smaller cities of Massachusetts, and some of the larger towns, where physicians do have all the advantages I have mentioned, because in those places the physicians have banded together to do on their part something towards the real advancement of the nursing profession. Let a company of physicians agree to give a portion of their time to this work, and they will soon have student nurses who will be most glad to do all these services I have mentioned in return for the instruction that they may so receive. Think for a minute of the little community down in Virginia at Hampton where a few white people, a few educated people, are surrounded by a large population of densely ignorant negroes. The former suffering and the ignorance in that district is something dreadful to think of. But within the last few years a training-school has been established down there, and now the physicians practising in Hampton can call upon student nurses to go to any sort of case. They can send out a couple or squad of them to any part of that country where they find wretchedness, where a few years ago they would turn round in despair and not make a second visit because their efforts would so evidently be unavailing. It is not only in Hampton. In Waltham we have the same advantages. There are a large body of nurses at the beck and disposal of any physician who is willing to join in giving these nurses instruction. The telephone or mail or messenger sent to the training-school will bring immediately a young nurse and an older one as teacher who will go into the house, clean it up, clean the patient up, watch the patient if she be in labor, send a bulletin to the doctor of the advance, clear things up after his visit and go the next day to take care of the mother and baby, sending back a report to the physician so that when the physician comes to his office in the morning he can decide in what direction to drive for his first call. Where families can pay for such service they do pay a little. If a patient needs massage, or a sponge bath, or to have the afternoon temperature taken, all that is done by the nurses. It seems to us there in practice that doctors who attempt the practice of medicine and surgery and midwifery without these advantages are much to be pitied; and when we think of what little we have to do in return for what we get, it seems a small contribution that we have the privilege of making towards the advancement of the nursing profession. It means for each of us perhaps one lecture a week through the year. These students come back to the school every day in the year. They go out to do their work, report to the doctors, receive the doctors' criticisms, and come in for lectures where they are told beforehand what to expect.

Now it seems to me that this fundamental idea must be grasped, that it is just as unfair for us to expect nurses to acquire knowledge only by experience as it would now be unfair to expect the medical profession to return to the old way of studying under the wing of physicians in private practice and learning how to do things only by seeing them done. The medical profession has advanced so far that that seems perfect folly. We cannot understand how the old physician could have learned enough to begin his practice simply by watching the practice of another. It is now incorporated in our notion of what is meant by medical education that a student of medicine shall be told beforehand what to expect and how to treat conditions he will find. It is so with the nursing profession. It is derogatory to intelligent womanhood, unjust to a rising profession, to expect that nurses shall learn only as they see work done. Of course, the profession of nursing, like the profession of medicine, is both a science and an art, and of course an art can be learned not from text-books nor from lectures, but only from personal observation. You cannot learn the touch of a kind physician from any page nor from any lecture. You must see the physician in active practice, see a master of the art of medicine in the wards of a hospital, at least, and it is to your advantage if you can see such practice in the private family also, if you would acquire the art.

So nurses must in the main learn the art of nursing from other nurses. There has been from the foundation in Kaiserwerth a direct succession. It was what Theodor Fliedner gathered in all parts of the world, and what Florence Nightingale in her turn was able to impart to her pupils and her pupils to others, that

constitutes the art of nursing; but besides that, there is an immense amount of knowledge that the student nurse can get from text-books and lectures, and that she must get before she meets the cases where that information is desirable. It is just as easy to teach a nurse, for instance, how to nurse a case of typhoid fever before she meets a case as it is to teach a physician how to treat the disease before he sees it. It is even easier, because the physician besides being taught to treat typhoid fever must also be taught in lecture how to recognize it. The nurse is saved that. It is not her business to make the diagnosis, but to carry out the treatment ordered. And I would just as lief have a nurse who had never seen typhoid fever, but who had been thoroughly trained as to the treatment required, as a nurse who had learned how to take care of typhoid-fever patients only by observation, for the typhoid cases where she learned her lessons would not very likely be like the case of typhoid fever where I wanted her. So with ever so much of the work that nurses have to do, much can be taught in lecture and can be studied from books.

Ten years ago I remember asking a bookseller in Boston to send me all the books on nursing that were to be found; and I think I am within the limits when I say that the whole library amounted to not over a dozen books. Now, books come out every month. There were then no periodicals of any kind devoted to nursing, and no mention in the medical periodicals about the art of nursing. Now, there are several such journals; and in a great many different ways, in congresses of nurses, in graduate-nurses associations, in training-school clubs, in the American Association of Superintendents of Training-Schools, and notably in the Section upon Nursing at the World's Fair, where the famous nurses from all parts of the world and likewise physicians interested in the problem were present and read papers, much has been done and is being done to advance the profession of nursing.

My main purpose to-night is to show how any physician can do something towards this advancement, and how richly he will be repaid by such exertion. Of course, here in Boston there are large training-schools in successful operation, and Boston used to be a centre for America. Training-schools, as they were started in different parts of the country, sent here for their superintendents; but Boston has now fallen behind in comparison with the advance made in New York and Baltimore. One reason for this drifting backwards can be very plainly seen in the self-satisfaction each school has in its own methods and in the rigid exclusion that is maintained. A visiting superintendent would not be allowed in a Boston training-school to even see the methods of training employed; while in Baltimore and in New York a visiting nurse is received at the training-schools with as much courtesy as a foreign surgeon would receive in Boston. The visiting nurse is made at once the guest of the institution and afforded every facility of studying the methods employed, and as a result of such proper professional cooperation there is a general stimulation of interest. If one school has an advantage, it is immediately shared. The nurses of the different schools meet together, the superintendents are close friends, and carry into good effect the different ideas as they are developed, and the profession advances rapidly. Unless there is some interchange of thought, some interchange of new-found theories and methods, of course the different schools, while they may progress, will progress only in the way that China does. But after all, Boston is Boston, and it would be the height of presumption to point out any possible improvement in the Boston training-schools. But when we look abroad through the country as a whole, and at the new training-schools as they are being established, we find not only great encouragement, but we can see splendid opportunities there for the active co-operation of any physicians who are interested in the movement. These schools welcome the volunteer services of physicians who are willing to give instruction either in the schools or outside of the schools, and it is only where outside instruction is made a part of the curriculum that real advance may be expected. It is all well enough to train a nurse to do the work of a hospital while inside the hospital buildings, of course she can only there be so trained; and it is equally evident that she cannot in any hospital ward be well trained for private work. Work for a medical man, as each soon learns, is different outside of the hospital from what it is inside; and it is ten times more different for the nurse.

This is no new idea. It is only within the last ten years that any training was given in this country outside the hospital walls. But in 1859 there was a school established in Lausanne where there is not even yet a hospital; and the graduates of that school, five hundred in number, are to be found in different parts of the world, not only in private practice, but many of them as heads of hospital work and superintendents of training-schools. The work of training nurses is entirely carried on outside. In the morning they have a lecture upon the work of the previous day, and upon the work already before them. One or two nurses are sent out to this kind of nursing, another pair to another kind of nursing, and so on. When they come back with their reports they are criticised, and during their day's service they are visited by the medical men in charge or the superintendent or assistant superintendent. At the end of a certain course of day-work they are sent out to do similar night-work, and visited to see if they do their work correctly. They are taught what to do in taking care of private patients so well that when they get through their three years' course they stand among the very best of the educated nurses of the present day. So it is no new idea, and although not favored in Boston is rapidly becoming so elsewhere. In the Long Island Hospital Training-school, for instance, if a surgeon or a physician of the staff there has a private patient that he is anxious about, he sends not to the registry to get a nurse of whom he knows nothing, but to the superintendent of nurses, who will send to him a student nurse accustomed to his methods. This is better both for the surgeon and for the nurse. And, it is in this line that the work of training nurses will develop. Nurses from the training-schools will be sent out during part of the course to private work under the physicians who are giving them instruction. In that way the physicians will have splendid service even in the families of the poor. There is a complete interchange of values. The nurse has her time to give in return for her education. Her time is of value to the sick patient and to the physician. The physician has time to give instruction to his class of nurses, because that takes less time than without their aid he would have to give to the nursing details of patients where there is no nurse. Nobody gives any money; the nurse gives her time;

the doctor gives his time and there results a complete care of a patient in place of the very incomplete care she would otherwise receive. I do not think any one who is acquainted with what an intelligent student nurse can do if he had to choose for himself between the few minutes' visit of a physician and the twenty-four-hour care of a day or night nurse would hesitate in deciding which he would have. The medical service or the surgical service is not made of less importance by emphasizing the importance of the nurse.

When we consider this problem we must keep in mind that the nurses are to the physician what the staff is to the general. The chief of the staff does not stand ready to take the general's place in case of the general's death on the battle-field. The general's place will be supplied by the senior officer of the line, and the staff-officer will go on serving him just as faithfully and truly; but what the staff stands ready to do is to carry out in fullest detail the orders and the wishes and the least hints given by the general in command. So with the executive officers of the ship. The captain is not undervalued as the executive department of the ship becomes more skilled. What if the executive officer on board is able to do every little thing, the function of the captain is not thereby lessened. The physician's service is not less great, the surgeon's service is not less valuable, when surrounded by a corps of trained nurses willing and glad to do his least bidding, nor need it be feared that the medical profession will ever lose its great advantage. The more completely the orders and the directions and the wishes of the medical profession can be carried out, the more good the medical profession can do. And I really believe that were it fully in evidence before us how many good intentions and even how many orders of the physician and the surgeon, miscarry simply because of lack of faithfulness in the execution of the orders, I believe the importance of the nursing profession would become so prominent that there could not be any hanging-back about it; there would be only an intense conviction on the part of physicians and surgeons everywhere that we must take hold of the problem if we are to do our part.

Now the trained nurse stands even here in Boston asking for help. There is a graduate nurses' association asking for lectures and for chances to work where they can learn improved methods of treatment. And I hope wherever it will be your privilege in the future to do so that you will throw your influence in the direction of advancing the nursing profession. I not only plead for that as a matter of evident self-interest, but I plead for that action on your part as a matter of simple justice. If a physician dies in the diphtheria wards of a hospital all the papers laud his memory. And popular sympathy goes out for the poor tired doctor who does this and does that, but how little is ever said of the nurse who not only goes into the wards of contagion, but stays there; who not only fearlessly meets the danger that the doctor meets when he goes in for a few minutes and out again into the fresh air, but who holds the little, dying, diphtheria child in her lap while it takes its last breath, not because she wants to, but because the little thing clings to her heart. Little is said of the devotion that tires not even by long days and night after night, until she, in comparison with the doctor's service, earns a veritable halo. Think of the nurses who work so tirelessly, so conscientiously carrying out the doctor's orders and struggling even to the very end. If we are depressed with the loss of a patient we have seen half an hour for a few times a week, think of the depression of the nurse who has lived there and felt the cling and clutch of the dying soul hanging on to life. As a matter of simple justice to intelligent educated women who are giving their whole lives in noble devotion, I plead for a larger interest in their work on the part of the medical profession, and I plead for a constant readiness on the part of every member of the medical profession to do every thing that in him lies for the advancement of our sister profession of nursing.

## Original Articles.

### METAPNEUMONIC EMPYEMA.[1]

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It has long been recognized that pleurisy as a secondary affection stands in an intimate relation to many infectious diseases. It is often found in scarlet fever, variola, typhoid fever and rheumatism. It complicates traumata, sub-diaphragmatic abscesses, peritonitis and pelvic inflammations, especially those related to puerperal infection. The general infectious influence belonging to these conditions is reinforced in the case of tuberculosis, pneumonia and pulmonary cancer by the element of contiguity, with the natural result that tubercular and pneumonic pleurisies are especially common. No constancy in the character of the pleuritic effusion, as to whether purulent or serous, exists with regard to any of these infections. The generally reported frequency of empyema in connection with scarlet fever is perhaps explainable from the fact that children's pleurisies are more apt to be purulent than those of the adult, and that most cases of scarlet fever are in children.

The general ratio of empyemata to all pleurisies is variously given as from 14 to 20 per cent. What proportion of metapneumonic pleurisies are purulent I am unable to say. Though the complication is by no means rare, it seems to me sufficiently important to warrant attention, especially as in so important a discussion as that of the New York State Medical Association,[2] the first speaker only refers to croupous pneumonia as "perhaps" one of the causes of empyema. On the other hand, Ewald [3] finds that no less than 36 per cent. of the cases of empyema which he collected from the Charité Hospital in Berlin were of pneumonic origin. I therefore ask attention to the following cases:

Case I. W. D., male, age nineteen. Good family history. Never seriously ill before.

April 22d, taken suddenly with chill and some pain in chest. Two days later, April 24th, admitted to hospital. In right axilla and at base behind, diminished respiratory movement; dulness; increased voice sounds and tactile fremitus; crepitant râles.

April 27th. Fifth day of disease. Signs of consolidation intense at right base; friction râles on left side. Defervescence occurred on the eighth day of the disease, but dyspnea continued, with much pain and restlessness.

[1] Read before the Boston Society for Medical Improvement, October 22, 1894.
[2] Transactions, 1893, vol. x, p. 84.
[3] Charité Annalen, 1874.

May 2d. Eleventh day. Flatness at bases. On right side signs of resolution over middle lobe, and of fluid at base. At left base fine moist râles, friction rubs and signs of probable fluid. This condition continued without improvement for the next few days. Dyspnea marked.

May 4th, a considerable increase in the cardiac area was made out. The left edge below was indistinguishable from the flatness of the left axilla, but the right side extended to the parasternal line, and a marked increase in the dulness over the base of the heart was evident.

May 8th. Dyspnea much increased. Sixteenth day of illness. Fluid at mid-scapula on right. Aspirated in tenth interspace, and 28 ounces of odorless pus was withdrawn with considerable relief.

May 9th, a marked increase in the cardiac area was demonstrated, the upper limit being one and a half inch below the sternal notch, the right one and a half inch to right of sternum at level of nipple, and the left edge two and a half inches outside the left nipple. This was believed to indicate a pericardial effusion; but as there was also evidence of fluid in the left pleura, aspiration was performed on this side in the ninth space to determine the character of the fluid. It proved to be serum. Ten ounces was withdrawn. It was quite clear, except at the end when it was slightly opaque and reddish. There was no pus. Very unfortunately neither the pus from the right nor the serum from the left side was submitted for bacteriological examination.

The removal of this small amount of fluid seemed to produce a slight return of the heart toward the left side, but there was still a marked dulness to the right of the sternum in the fourth intercostal space. Whether this dulness also occupied the fifth space to the right of the sternum (Dr. Rotch's test of a pericardial effusion) could not be determined on account of the considerable amount of fluid still remaining in the right pleura. No attempt was made to aspirate the pericardium, but the patient was transferred to the surgical side for permanent opening of the empyema. This was done on May 12th, the twentieth day of illness, but he survived the operation only three or four hours. No autopsy was allowed. A report was made by the bacteriologist of a culture from the pus obtained by operation, that it represented a pure culture of the staphylococcus pyogenes citreus.

CASE II. M. S., female, married, age forty-five. Family history good, and previous health fair except fistula five years ago. Taken suddenly ill August 13th, while sitting at the window, with sharp pain in left costal region and much dyspnea; slight dry cough, without expectoration. Admitted August 16th, on fourth day of illness. Well-marked signs of consolidation over left lower lobe, the dulness becoming absolute at extreme base. These signs continued without much change till August 21st, when an increase of pain was complained of and flatness was observed through the left back below the angle of the scapula and in the axilla. The heart was displaced to the right, the apex being two inches to the right of the nipple. Respiration and voice sounds diminished. Aspirator needle introduced in posterior axillary line, at eighth interspace and 34 ounces of foul-smelling pus removed. The first flow of the fluid was thin and purulent, but later it became thick pus with some blood at the very end. The next day some resonance was observed as low as the seat of puncture, and the apex of the heart had returned three-quarters of an inch toward the left.

The report of the pathological laboratory on the bacteriological examination was as follows: "Culture tube contained many fine, pin-point colonies and a number of large, light-yellow, shiny, round colonies. Former are diplococci without chains; latter are short oval bacilli. Diagnosis: pneumococcus and bacillus coli communis present in pus. Cover-slip showed many leucocytes but no organisms."

August 24th, the level of flatness had risen to one inch above point of puncture, and the patient's condition was weaker and the pulse poor. Despite these unfavorable symptoms she was transferred to the surgical service for operation. The eighth rib was excised, and a pint of very foul pus evacuated. She failed, however, and died two days after the operation. No autopsy.

CASE III. P. W., female, age twenty-six. Father died of phthisis, but patient is strong and robust. Nine months ago had diphtheria with good recovery.

August 16th, visited a harbor resort and danced all the afternoon. Returning, sat in an exposed position at the bow of the boat, without a wrap, and felt cold draught on her left shoulder.

August 18th, went to bed with a chill, and woke at 2 A. M. the same night, vomiting. Cough with bloody expectoration followed.

Admitted to hospital August 20th. Marked signs of consolidation in left lower lobe, except at extreme base where there was flatness, and where the strong tubular breathing, increased voice sounds and tactile fremitus of the upper part of the lobe were absent.

August 23d. Effusion had risen to the angle of the scapula, consolidation persisting above.

August 25th. Effusion just above angle of scapula, consolidation still remaining above. Heart not materially displaced.

During the following week, the second of the illness, the effusion gradually increased, with harsh respiration and moist râles over the upper lobe. The heart was not displaced but a systolic mitral murmur had developed. The pain had increased and on September 1st she was aspirated in the eighth interspace in the post-axillary line and eight to ten ounces of pus were withdrawn. This specimen became contaminated, so that the bacteriological cultures were not reliable.

Two days later, a permanent opening being deemed desirable, Dr. Gavin kindly operated in my ward to spare the patient the shock of removal. An incision was made in the axilla in the seventh interspace, but to our surprise failed to reach pus; and an exploratory puncture made near the site of the former one also gave a negative result. The wound of the operation healed kindly in about twelve days and the patient was meantime comfortable.

September 6th, an examination of the sputa was made by the pathologist who reported: "Some diplococci seen, with at times a suspicion of a capsule about them, but no clearly defined capsule. No bacilli tuberculosis found."

September 19th, the patient began to cough for the first time in many days and to expectorate freely. The signs of effusion still persisting, she was again aspirated near the site of the original puncture and about three ounces of thick, odorless pus were re-

moved, which gave, according to the pathologist's report, "a pure growth of the pneumococcus."

September 26th, the healed incision of the surgeon's operation of September 3d reopened and discharged a considerable quantity of pus. This discharge was facilitated by the introduction of a drainage-tube, which remained in for eight days. At the present time the cavity is discharging freely, and she is out and about and gaining steadily.

Case IV. J. M., female, age fifty-three, widow. Anemic; poorly nourished. Says she has been well except for rheumatism.

May 13th. Sudden onset of illness, with pain and bloody sputum. Entered on fourth day of disease. Pneumonic consolidation of left lower lobe was diagnosticated. The temperature fell by lysis reaching the normal on the ninth day; but she had involuntary dejections, and gradually failed, dying on the eleventh day. No fluid was detected during life.

Autopsy showed in addition to the pneumonia of the left lower lobe an empyema of the same side, with nine ounces of dirty-yellow purulent fluid. This patient was also found to have gummata of the liver and syphilitic disease of both lungs.

The bacteriological examination specimens from the lung and pleural exudate, gave on blood serum pure cultures of the pneumococcus.

The four cases already reported occurred in my own service at the City Hospital during the past summer. I present only one temperature chart, that of Case I, which is a perfectly typical representation of this combination of diseases, showing the defervescence from the pneumonia on the eighth day, with subsequent rise due to the pleuritic involvement. It is noteworthy that we have here simultaneously a purulent pleurisy on the right side and a serous one on the left.[4] There was also an undoubted pericardial effusion, but as to its character we remain in the dark. To the point of the diverse nature of the two effusions, both of which would seem to own the pneumonic infection as their common origin, we will return later.

I will now very briefly outline the chief clinical features of a few other cases of distinctly metapneumonic empyema, greatly condensed from the hospital records, of the past ten years. They represent by no means all the cases which have occurred during that time.

Case V. Male, age forty-one. Taken sick April 24th with pneumonia. May 15th, by aspiration, one quart of pus was removed; May 19th, 45 ounces; May 26th, 46 ounces. May 29th, permanent opening. July 25th, died.

Case VI. Female, nurse. January 1st, had diphtheria. April 20th, same year, had measles; discharged, convalescent, May 3d. May 6th, broncho-pneumonia; May 20th, convalescent, but slow gain in strength. June 24th, aspirated, and pus obtained. June 28th, pus again obtained. July 10th, permanent opening. July 28th, died. No autopsy.

Case VII. Female, age thirty-two. March 18th, chill, followed by pneumonic signs. April 2d, rise of temperature; effusion diagnosticated. May 8th, aspirated; twenty-five ounces laudable pus. May 24th, aspirated; twenty-eight ounces laudable pus. This was followed by improvement, and patient was walking about. July 18th, aspirated; thirty-two ounces sweet pus. July 25th, discharged to surgical side for operation. October 3d, left hospital with wound of permanent opening nearly closed.

Case VIII. Male, age seventy-two. April 20th, chill; cough, with rusty sputa. April 30th, cough had stopped and patient was convalescent, but great prostration and dyspnea. May 7th, signs of effusion. May 25th, pus removed by aspirator, and again on June 8th. The next day, June 9th, died suddenly.

Case IX. Male, age thirty-five. Cough began with brownish sputa about November 23d. Kept about till December 20th; then had a chill. Signs of effusion. Aspirated on entrance, December 22d; very little pus. Signs of effusion continued. Died December 30th.

Case X. Female, age thirty. December 30th, taken suddenly sick with chill. December 31st, admitted with signs of pneumonia at right apex; good resonance below. January 10th (twelfth day), temperature normal. The next day signs of effusion in right base. January 15th, aspirated two to three ounces of pus. Next day permanent opening; 42 ounces pus evacuated. February 27th, discharged, well.

Case XI. Male, age sixteen. Taken sick August 23d. Admitted September 1st. Roseola, tympanites (typhoid), dulness right lower back. September 4th, increased voice sounds and fremitus, with crepitant râles. Pneumonia diagnosticated. September 8th, effusion appeared. September 16th, aspirated 38 ounces of pus. September 20th, aspirated 24 ounces of pus. September 23d, permanent opening. November 20th, discharged, well.

Case XII. Male, age thirty. March 16th, sudden onset of illness with chill; pneumonia evident in left lower back and no signs of effusion. March 26th, crisis on tenth day. April 3d, pus obtained by aspirating, also, April 10th. Operation the same day. Discharged May 12th, relieved.

Case XIII. Male, age twenty-one. Onset January 23d. Consolidation right middle and lower lobe. February 3d, crisis on tenth day. February 9th, effusion recognized, which rapidly increased. February 10th, aspiration of pus; permanent opening. March 21st, discharged, well.

The foregoing cases have been presented entirely from the clinical standpoint, and the bacteriological evidence is unfortunately largely wanting. But the important question as to all such cases is, What is the relation of these empyemas to the specific micro-organism of pneumonia? In the majority of such cases as have been studied, this question is answered by the finding of Fränkel's diplococcus in both the sputum and the purulent exudate, and post-mortem in cultures from both the lung and the pleura.

But why do we find in a majority of cases of pleuropneumonia only a serous exudate, and why can we have, as in Case I, a serous exudate in one pleura and a purulent one in the other, when both come from one presumably identical primary infection?

In answering these questions we can say, first, that the difference between a serous and a purulent exudation is probably more apparent than real. It is a well-known fact that serous exudates become purulent, not usually, as was once thought to be the case, by infection through careless paracentesis, but through a natural evolution. Hence though not all serous effusions

[4] A precisely similar case reported by Ewald (loc. cit., Case xxxii) is the only other one of the kind that I have come across.

become purulent, many purulent ones have once been serous, and have gradually undergone an increase of cellular elements till they have become converted into pus.[6] This accounts for the rarity with which pus is found in the early days of an infection, two of Ewald's cases in which it was detected on the fifth and seventh days respectively, being regarded by him as quite exceptional. The occurrence, outside of these cases, of genuine primary empyemata is, of course, not denied.

Further, it is known that certain micro-organisms which are generally characteristic of pus may exist in a primary serous effusion without ever forming pus. For example, Goldscheider[6] has found (and his conclusions are in accord with those of other observers, as Levy, Weichselbaum, etc.), cases of primary pleurisy in which the streptococcus and others in which the staphylococcus pyogenes existed, which never developed pus but which underwent complete and permanent resolution.

It has been shown that the production of pus is dependent not alone on the specific character of the pus organism but on other conditions favorable to its growth connected either with the coccus itself or with the organism which receives it. Perhaps one such condition has to do with the numerical quantity of the micro-organisms. Thus Hermann at the Pasteur Institute found that at least 500,000,000 staphylococci were necessary to produce an abscess subcutaneously in a rabbit, and that different tissues of the animal possessed a varying susceptibility. Whether the fact be due to a less quantity or a less virulence of the streptococcus in certain cases, it is at all events true that that micro-organism which often leads to empyema may produce only a serous effusion. It seems, therefore, probable that the pneumococcus whose frequent causal relation to pneumonia and its accompanying pleurisies is demonstrated may, according to varying conditions, produce now a simple pneumonia of less or greater severity, now pleurisy with merely a serous exudate, and now one in which the serum passes over into pus.

Double empyema, though rather a rare affection, illustrates well the causal relation of pneumonia. Dr. G. A. Sutherland[7] has very recently collected 21 cases of bilateral empyema in children and adolescents. In 14, or 67 per cent., the affection was secondary to lobar pneumonia, and while this ratio corresponds very nearly to that given by Adams for unilateral empyemata in children (when in 32 cases 71 per cent. were metapneumonic) it is especially interesting to observe that in Dr. Sutherland's cases, the double empyema followed in eight of the fourteen young patients a *bilateral* pneumonia.

The presence of the pneumococcus in a pleuritic exudation, while it indicates, of course, that the individual has received the specific infection which is the ordinary cause of pneumonia, does not necessarily imply that the clinical disease pneumonia, that is, a consolidation of the lungs, is present. For several cases were recently reported by Drs. Washbourn and Hale White before the Royal Medical and Chirurgical Society[8] of purulent pleuritic exudate, containing pneumococci, accompanied by fever and serious symptoms, but without consolidation. Of seven cases claimed to be such, one cannot help feeling that in some a latent or central pneumonia may have existed without giving physical signs. But in two cases death occurred after a few days' illness and in each the autopsy showed empyema containing pneumococci, and no involvement of the lung.

Not only may we have a pneumococcus empyema without pneumonia, but, rarely, also a pneumonic pleurisy without pneumococcus. From Levy's report on his bacteriological studies of 54 cases of pleurisy,[9] it appears that among them were 19 which occurred as complications of pneumonia and influenza. Of these ten were serous and nine purulent. Of the former class, three showed no organisms, one the staphylococcus albus, one the same with the pneumococcus, and *six* (five?) the pneumococcus alone. But all nine of the purulent cases contained the pneumococcus.

It is not then to be denied that metapneumonic empyemata may contain other organisms than the pneumococcus — may even contain exclusively the streptococcus or the staphylococcus. This is accounted for by Fränkel and others on the ground that the last-named organisms are secondary growths in the pneumonic lung and yet may be the only ones to penetrate to the pleura. Thus, while Fränkel[10] attaches no diagnostic value to them, either in primary or secondary empyema, he believes that the exclusive presence of the pneumococcus in an exudate shows that the empyema is the sequel of a genuine fibrinous pneumonia; and, further, that the spontaneous healing of empyemata occurs, as a rule, only where this is the organism present. This view of the relatively favorable prognosis in a pneumococcus empyema is in accord with the general opinion of others.

An interesting case reported by Bureau[11] illustrates how a case went on very favorably under the purely pneumococcus infection, but went badly when this became mixed with another purulent organism. The essential facts are these: A woman, age thirty-six, was taken ill on October 23d. There was well-marked pneumonic consolidation of the right base, and a mitral systolic murmur was heard. Examination of the sputum showed the pneumococcus as the only pathogenic organism. Convalescent on the thirteenth day. On the twentieth day there was a rise of temperature with pneumonia of the left lung. Pneumococci again found in the sputum, and after a few days, *in addition*, staphylococcus albus and leptothrix. Purpura developed, and also an empyema. In the pus aspirated there were at first only pneumococci, and later staphylococci — the same change that was observed in the sputum. Death occurred on the forty-fourth day. The autopsy showed an infectious endocarditis, with diplococci in the heart, pleura and peritoneum. The original (right) pneumonia had healed completely.

According to Netter[12] the pneumococcus is the causative organism in 43 per cent. of purulent pleurisies. The remaining 60 per cent. or so are described by him as due to streptococci; but if, as we have seen, a few truly metapneumonic cases present these other cocci, it would appear that pneumonia was responsible for nearly half the cases of empyema, a larger proportion than most other observers admit.

As to the relative benignancy of the purely pneumo-

[6] Wilson Fox (Treatise on Diseases of the Lungs and Pleura, p. 965, American edition) almost alone of recent writers seems to doubt that serous effusions may become purulent independently of outside septic influences, "superadded causes," as he calls them.
[6] Zeitscrift für Klinische Medicin, 1892, vol. xxi, p. 363.
[7] Lancet, June 9, 1894.
[8] Lancet, March 3, 1894.
[9] Lancet, November 29, 1890.
[10] Charité Annalen, 13 Jahrgang, 1888, p. 147.
[11] France Médicale, 1892, xxxix, p. 177.
[12] Quoted in the Boston Medical and Surgical Journal, May 25, 1893.

coccus empyemata, Netter also speaks hopefully. He has seen four cases which recovered after a single aspiration and has collected thirty-two similar cases from other sources. Whether some of these favorable results, however, did not occur in children, does not appear.

In conclusion, I would make the following suggestions:

(1) In all pneumonias where dyspnea or weakness follows the crisis, watch for effusion, and if found, aspirate for purposes of diagnosis.

(2) If the pneumococcus alone is found in the exudate, consider the pleurisy not a complication but only a phase of the pneumonic process.

(3) Give a comparatively good prognosis to such cases where pleurotomy is called for.

(4) Before resorting to this operation, wait longer than would be justified under other conditions, as there is a slight chance that simple aspiration may suffice.

## DEFERRED DIAGNOSIS.

BY O. F. McCALLUM, M.D., MAITLAND, NOVA SCOTIA.

PHYSICIANS in early practice will sometimes find that after the most careful and prolonged examination of some cases, they will be in doubt as to the right diagnosis. In such cases they should endeavor to carry the diagnosis as far as possible, and explain to the patient the reason for their hesitation and doubt. This is a procedure which every practitioner now and again adopts. In some cases the facts are not sufficient to warrant a conclusion; in others, although sufficient facts are in reality present, yet their observation is attended with so much difficulty, or the case is so complex, that it is desirable, before committing one's self to a final opinion, to examine the patient again and again, and to take time to think over the case. This is truly a scientific method of procedure, which every one, who wishes to arrive at the best possible conclusion must frequently adopt. On first entering practice one will, of course, be frequently in doubt, and until one has thoroughly acquired the confidence of patients, one may feel some difficulty in telling them, when they ask for your opinion, as they usually will do, that he is unable to form a positive opinion as to the nature of the case; for one naturally will think that they will attribute hesitation and doubt, not to the intrinsic difficulties of the case, but to want of experience and knowledge. And in some cases they would be correct. Tact and ingenuity enable some men to get out of the dilemma, but one will, I think, generally find that the straightforward course is in the end the best. Sensible and intelligent people will seldom be dissatisfied if told that the case is one of difficulty and doubt, and that it is necessary before making up one's mind as to its exact nature, to take time for its consideration and further observation. Once having gained the confidence of patients, and acquired a certain reputation, there is no need to hesitate as to the course to be adopted.

To give an illustration of the kind of case in which it is necessary to defer the exact diagnosis: A patient comes, let us suppose, with symptoms of intra-thoracic pressure. On physical examination it is evident that there is a tumor within the chest. But it is difficult, or may be impossible, to decide at the first interview whether the tumor is an aneurism or solid growth. The evidence may seem to be evenly balanced; and sometimes, though it must be confessed rarely, this is naturally the case. The chances being equal, the practitioner may deliberately choose to run the risk of being wrong, knowing if he happens to be right he will gain more credit from being right than he will gain discredit from being wrong. This is exactly the principle upon which the bone-setter makes his reputation. The public hears of the few successful results. They are widely noised abroad, both by the patient and operator; but the failures — the many gross mistakes and too frequently disastrous results — are forgotten, or make comparatively little impression on the public mind. As a matter of experience, it is found that one thoroughly successful result is quite sufficient to counterbalance a large number of serious errors. Now, suppose that the patient with the intra-thoracic tumor dies, and that the positive diagnosis which has been hazarded is found to be correct. The physician congratulates himself, and is congratulated, over the result. People talk of the wonderful diagnosis which Dr. So-and-So made, apparently without any difficulty where others deferred their diagnosis or would not give a definite opinion, and seemed to hesitate and doubt. Well, another doubtful case presents itself. The same process is adopted; but this time the guess — for it is nothing more — is not correct. The temptation to appear brilliant at the risk of failure where the chances seem equal, and to carry the diagnosis further than the facts of the case warrant, is a strong one; but it should be sternly resisted and suppressed. Like all other temptations, it grows stronger and less easily resisted the more frequently it is allowed to get the upper hand, until finally it becomes a habit.

Now, the object of the physician ought not to be to make a few happy and apparently brilliant hits, mixed up with an equal number — it may and probably will be with a greater number — of mistakes, but to arrive in every case at the best possible conclusion which the facts warrant.

Scientific caution is a quality which cannot be too highly honored; and it cannot be too strongly insisted upon that, in forming a conclusion, it is better to err on the side of caution rather than of rashness. Caution may, however, be carried to an extreme. In the great majority of cases which come before the physician, the facts are quite sufficient to enable a competent man to come to a positive conclusion. When one finds a man constantly or very frequently hesitating to give a positive opinion, one naturally thinks that he is not able to form one, and that he is using cautiousness as a cloak for ignorance and doubt. One does occasionally meet with a shrewd man of the world who is not very strong professionally, who knows by experience when he does commit himself to a positive opinion he is apt to make a mistake, and recognizing that positive errors tell injuriously against him, wraps himself up in the cloak of cautiousness, and tries to make capital out of his reserve, by posing as one who gives careful and well-considered opinions.

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IT has been computed that the death-rate of the globe is 68 per minute, 97,790 per day, or 35,717,790 per year. The birth-rate is 70 per minute, 100,800 per day, or 36,817,200 per year, reckoning the year to be 365¼ days in length. — *Scientific American.*

## Clinical Department.

### REPORT OF A CASE OF UNILATERAL CYSTIC DEGENERATION OF THE KIDNEY COMPLICATED BY TUBERCULAR PERITONITIS.[1]

BY AUGUSTUS P. CLARKE, A.M., M.D., CAMBRIDGE, MASS.

I WAS called, July 26th, to visit B., aged sixty-five years, a cordwainer by trade. He had been of good physique, and had enjoyed excellent health until about eight years ago, when he began to suffer from the effects of an abscess occurring in the abdominal wall, involving the peritoneal cavity, and presenting itself first in the upper portion of the hypogastric region. He, it appears, was taken to the Boston City Hospital, where he remained eight weeks, and was operated upon. At the time of his discharge from the hospital he regarded himself as entirely cured. He resumed his occupation, and was apparently well until about three years ago, when he began to suffer from gastric disturbance, and was unable to accomplish the work of his trade as easily as heretofore. Three months before I was called he had become much worse, and had been under medical attendance during that period, although he was not confined all the time to his bed.

From the history and account of his symptoms as furnished me, I have no doubt that his case must have been regarded as somewhat obscure. When I made my first visit he was in bed; his heart's action was weak; and there was marked ascites with considerable edema of the lower extremities. He complained much of the dyspnea with which he had for some time been troubled.

I suspected that the patient was suffering from some form of renal trouble, and I did not hesitate to apprise the family upon this point. I was, however, told that the kidneys were not affected, that they had been found by the previous medical attendants through recent examinations of the urine, to be free from disease.

During the early part of my attendance on the case there was some abnormal elevation of temperature; occasionally the patient would have a chilly sensation, though there was no prolonged or well-pronounced chill. Nausea and vomiting of bile were other distressing symptoms. Though the patient was suffering from dyspnea, I did not regard that symptom as sufficient indication to bear out the conclusion that there was any distinct cardiac lesion. By eliminating that possible source of disease, the diagnosis was narrowed down to affections of the kidney, mesentery and peritoneum. If the disease in its inception was confined wholly to the mesentery or to the peritoneum, there would have been more marked indications. The advantages usually afforded by palpation in arriving at a correct diagnosis were negative on account of the large amount of fluid in the abdominal cavity.

Dr. Tuttle made a visit with me on August 16th, and advised against resorting to paracentesis. The heart's action at that time was becoming weaker, so that exploratory incision became out of the question. Though the frequent examination of the urine up to this time had been attended with negative results yet we could not help feeling that there was more or less advanced renal disease.

Saline laxatives, digitalis, pilocarpine in connection with tonics, strychnine, nitro-glycerine and other cardiac stimulants were early resorted to with some apparent temporary beneficial effect.

There was about the face a peculiar expression which indicated that the patient had undergone much general suffering; it did not seem to be due to chronic cancerous or malignant disease. The facies was such as sometimes appears in certain cases of tuberculous disease. There was, however, no cough, no night sweats. As regards the action of the kidneys, the quantity of urine voided per diem was not far from the normal amount.

The patient, as said before, was relieved somewhat by the treatment, but afterwards grew worse, and died August 30th.

An autopsy was performed by Dr. Tuttle and myself some twelve hours after death. On section of the abdomen there was found about two-thirds of a waterpailful of fluid. The peritoneum and mesentery presented a peculiar appearance; being everywhere thickly studded with what appeared to be miliary tubercles. The peritoneum involving the liver was also infiltrated with the tubercular deposits though the liver itself on section was normal. The gall-bladder was unduly distended with its usual liquid contents, otherwise it was normal. The urinary-bladder was much contracted. The prostate gland had undergone chronic enlargement. The heart presented no special abnormal appearance. There were no tubercular deposits found in either lung, and there were no plastic adhesions. There was, nevertheless, considerable fluid in both sides of the chest. The presence of this was, no doubt, a contributing cause of the dyspnea. The right kidney was much enlarged and had undergone *cystic degeneration*. The left kidney was nearly normal. The spleen was normal; so also the stomach. The condition of the kidneys revealed by the autopsy showed why the results of the several examinations of the urine were negative. The left kidney being normal or nearly so the urine secreted by it must also be normal; the right kidney having undergone extensive degenerative changes, and the glomeruli through which the albumin principally escapes having also been destroyed, there could scarcely be expected to occur any real loss or escape of albuminous elements and other products significant of nephritic lesion.

In closing, I would here incidentally remark that it would seem to be important to bear in mind that such particular changes in the kidneys may take place, and that when conducting an examination in the case of any obscure abdominal disease, the existence of such a possible condition should not be left unconsidered.

[1] Read before the Cambridge Society for Medical Improvement.

### A CASE OF SUBCUTANEOUS SUTURE OF A FRACTURED PATELLA.

BY JOHN W. KEEFE, M.D., PROVIDENCE, R. I.,
*Surgeon to Rhode Island and St. Joseph's Hospitals.*

OF the many methods that have been devised for treating fractured patellæ, that by subcutaneous suture, described by Dr. L. A. Stimson, seems to offer the happiest results, with a minimum amount of risk.

The following case is one that came under my observation at St. Joseph's Hospital, this summer: T. A. K., male, twenty-four years old, student. On June 28, 1894, while playing ball, he was tripped by

a small, round stone, and felt something "give way" in the left knee. He did not fall, but deliberately sat down; and after a few minutes he arose, and walked about ten yards. He then felt as if something had again "given way," and was unable to walk. He was taken to his home, and later to the St. Joseph's Hospital. There was considerable swelling, due to a large amount of effusion into the knee-joint, and a transverse fracture of the left patella was found at the junction of its middle and lower thirds. The leg was elevated, and bandaged to an inclined splint with ice bags to the knee. Twelve days afterwards the effusion in the joint had disappeared to a considerable degree, leaving a separation of about a finger's breadth between the fragments.

OPERATION.

The field of operation was rendered aseptic, and the sutures and instruments sterilized by boiling ten minutes in soda solution. The patient was etherized. Four incisions, one-fourth of an inch long, were made through the skin at each corner of the patella. A strong twisted silk suture, similar to those employed in tying the pedicle of an ovarian tumor, was passed through the ligamentum patella, making an entrance at one, and an exit at the other lower opening. The suture was again entered at the lower opening of exit and passed beneath the skin, by the side of the patella, through the upper opening on the same side; then transversely, through quadriceps tendon, along the upper border of the patella, and out through opposite upper opening; then again, through latter opening, beneath the skin and by the side of the patella, through lower first point of entrance; thus encircling the patella. By leaving a loop of the suture at each opening, one is materially aided in making traction when the ligature is tightened. The fragments may be brought together by tenaculi in the hands of an assistant. The suture was drawn tightly, tied, and the ends cut short, the knot being buried in the wound of entrance. The four incisions through the skin, were closed with silkworm-gut sutures. An aseptic dressing was applied, and the leg bandaged to a posterior, inclined splint.

Eight days after the operation the wounds were dressed for the first time and the silkworm-gut sutures removed. Swelling diminished. No evidence of suppuration. An antiseptic dressing and posterior splint. Ten days later a dressing consisting of a light plaster-of-Paris splint was applied, reaching four inches above and below the knee-joint. The plaster splint was removed one month from day of operation. There is at present about forty-five degrees motion in the joint.

Thirty-five days from the date of operation the patient was able to walk without a cane, and to fully extend the leg. The line of fracture can be felt, but no evidence of separation of the fragments. Hot and cold douching, and massage advised. Ordinary bandage about the knee.

August 30th. Elastic knee-cap worn. The range of motion was gradually increasing, and no inconvenience was felt from the silk buried suture.

Nine weeks after the operation the patient was able to flex the leg to 115 degrees.

I should advocate performing the operation as soon as practicable after the injury; aspirating the joint if necessary to enable one to approximate the fragments; but this latter procedure would seldom be found necessary. The advantages of this method of treatment are, that the fractured surfaces are maintained in perfect apposition, thereby favoring bony, rather than fibrous, union; the joint is not opened, thus preventing the possibility of joint infection; the operation is simple and readily performed, and passive motion may be commenced early, rendering even partial ankylosis of the knee-joint improbable.

## Medical Progress.

### RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., OF BOSTON.

(Concluded from No. 26, p. 643, Vol. cxxxi.)

SUBNORMAL ACCOMMODATIVE POWER.

THEOBALD[6] says that, in 1,615 consecutive cases of refraction and muscular anomalies met with in private practice, since his attention was first attracted to this condition, he found subnormal accommodative power, more or less marked in 155 times, or in about nine and a half per cent. of the total number.

Theobald's doctrine of subnormal accommodative power is based upon the observation that, while the normal balance of the lateral muscles of the eyes, as shown by the vertical diplopia test is in distant vision one of orthophoria, in near vision (at the usual reading distance) the normal vision is exophoria, the relative divergence amounting, as a rule, to from three to five degrees. In cases where there is less exophoria than this for near if emmetropia be present, convex glasses for near vision only are indicated. In hypermetropia, stronger glasses for near vision than can be worn for distant vision may be called for; and in myopia weaker glasses must be prescribed for reading than would otherwise be given.

ON THE PRESCRIPTION OF LENSES IN THE PRESENCE OF ANOMALIES OF THE OCULAR MUSCLES.

Savage[7] lays down the following rules which he believes should govern the prescribing of glasses in cases of abnormalities of the ocular muscles:

(1) Give a full correction of hypermetropia when associated with esophoria.

(2) Give no correction, or only a partial correction, of hypermetropia when associated with exophoria.

(3) Give a full correction of myopia when associated with exophoria, and when there is orthophoria.

(4) Give only a partial correction, or none at all, of myopia when associated with esophoria.

DISTURBANCES OF VISION IN HYSTERIA.

Drs. J. K. Mitchell and G. E. De Schweinitz[8] in an article upon this subject, come to conclusions which are briefly as follows:

(1) Achromatopsia, or loss of color sense, is not present in American cases (certainly not as described by French observers).

(2) Reversal of the normal sequences of colors, so that red is the largest field, is usually present when there is anesthesia (although two cases are mentioned of universal anesthesia with no alteration of the visual

[6] Transactions of the American Ophthalmological Society, 1894, p. 138.

[7] Ophthalmic Record, May, 1894, p. 447.

[8] The Journal of Nervous and Mental Diseases, January 1894, p. 48.

fields, and another case in which there was marked contraction but no reversal).

(3) The green field is, relatively at least, more, and more often contracted than the others.

(4) In the difficult distinction between certain types of neurasthenic and hysteric patients, the presence of disturbance of the color sense is of diagnostic import; it is less apt to be present in the former than in the latter, and yet its absence is of little meaning, as it was not found in many cases of hysteria and was found in some neurasthenics.

(5) That it is possible that in rare cases of one-sided or general hyperesthesia that the colors are more acutely appreciated than is normal.

(6) The violence of the hysterical manifestations bears no relation to the disturbance of the color sense.

(7) The following changes in the field of vision are likely to be present in cases of hysteria:

(*a*) Simple contraction of the color fields with unaffected form fields.

(*b*) Contraction of both color and form fields, the green fields being relatively more contracted than the form field.

(*c*) Partial or complete reversal of the normal color fields, most commonly that variety in which the red field is the largest.

(*d*) Unusual obscurations of portions of visual field.

### INCREASE OF TENSION AFTER OPERATION FOR SECONDARY CATARACT.

Teale[9] says that the irido cyclitis or panophthalmitis which sometimes follow this operation has for its initial stage an increase of tension, and if that can be properly dealt with the process will be stopped. He cites two cases of his own in which within forty-eight hours after the operation the patient suffered intense pain and dimness of vision with increase of tension, and recalling advice offered to him many years before in a similar case by Sir William Bowman, he in one case on the third day, and in the other on the fourth day, punctures with a broad needle through the upper part of the cornea and through the iris into the vitreous humor. The needle was turned sideways and allowed a few drops of vitreous humor to escape. In a quarter of an hour, in each case, intense agony was converted into perfect ease and with the most happy ultimate result.

### THE HALO SYMPTOM OF GLAUCOMA.

Richey[10] suggests that the halo symptom of glaucoma must be caused by some condition which is probably to be found in front of the retina, and as the symptom is a prodrome of glaucoma cannot be caused by any increase of tension, and further suggests that the sequence of colors is such as would be produced by the reflection of light from the surfaces of the rhombic prisms of acid sodic urates, or from amorphous granules of the same material, which also has this quality.

M. GUENIOT brought before the Academy of Medicine of Paris two women each of whom had had the operation of Cæsarean section twice performed upon her. The four children were living. The mothers were rachitic, and so were two of the children. In one case there was an interval of seventeen months between the two operations.

[9] Bowman Lectures, The Lancet, June 17, 1893, p. 1,429.
[10] Transactions American Ophthalmological Society, 1894, p. 95.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, October 22, 1894, the President, Dr. C. F. FOLSOM, in the chair.

DR. C. F. WITHINGTON read a paper on

### METAPNEUMONIC EMPYEMA.[1]

DR. A. L. MASON: Cases such as Dr. Withington has reported have been common of late years, and I think especially so during the late epidemic of influenza. What connection the influenza germ may have with these empyemas is not altogether clear; but it has appeared to me that since the influenza epidemic has subsided empyemas have been less frequent, pneumonias also.

The diagnosis of these cases when they come to the hospital is sometimes difficult. They enter late, having suffered from pneumonia perhaps a longer time than is reported; and the physical signs are often obscure, those of pneumonia being present as well as those of effusion. When cases are watched from the outset it is much easier to treat them promptly and efficiently.

There has been a distinction made, chiefly by French writers, between the so-called metapneumonic and parapneumonic pleurisy, chiefly based upon the statement that the effusion in parapneumonic pleurisy, which occurs in the early days of the pneumonia, is serous, whereas the metapneumonic effusion is purulent. This, no doubt, is often true; but from the case which Dr. Withington reported with double effusion, it is quite evident that empyema may originate very early. The fact, however, that an early effusion in pneumonia is most frequently serous I have verified in a considerable number of cases tapped for extreme dyspnea, the effusion being sometimes sanguinolent from the acuteness of the process.

As to the prognosis in the purely metapneumonic empyemas, I should think it was better than the cases that Dr. Withington has reported would lead one to suppose. The mortality, so far as I can recall in the large number of cases that have presented themselves in the last four or five years, has been very moderate indeed, after drainage. I remember one instance of recovery in an adult after simple aspiration. The pus did not reaccumulate. Such a fortunate result is no doubt more frequent in children; and in the City Hospital records there are a number of instances in which they have recovered from this form of empyema after one or two aspirations. That fact, however, would not lead one to defer a more radical operation, because such a result is certainly exceptional.

There are one or two matters in regard to the drainage of chests under these circumstances which are interesting. One relates to the question of etherization. I noticed that Dr. Withington said one of his cases was operated on in bed without removal. Many of these patients are so exhausted, debilitated by prolonged illness, that the resection of ribs should be deferred. Most surgeons to-day think it important to resect ribs in all cases of empyema, but certainly the result in these metapneumonic empyemata is usually favorable without resection of the ribs; that necessitates etherization, in itself a dangerous procedure

[1] See page 5 of the Journal.

when one side of the thorax is full of pus and the other lung perhaps edematous from pressure. I have heard of a number of fatal instances of this kind which seemed to be the direct result of anesthesia; therefore, a rapid evacuation by simple incision without removing the patient from bed, seems to me to be the proper procedure where there is great exhaustion or great oppression in breathing.

DR. E. N. WHITTIER: I think, Mr. President, after the conversation we had over the telephone with reference to the title of this paper, I shall be obliged to admit myself as occupying a peculiar position. I did not think then that the title could be successfully demonstrated in a paper of the ordinary limits; but I am free to admit that the situation is not very different from that so well described by Goldsmith in which he said, "Truth from his lips prevailed with double sway." For, certainly, after listening to Dr. Withington's paper I must admit that he has demonstrated the right to preface the paper with a title which to some may seem somewhat obscure. I cannot quite satisfy myself, however, as to the impropriety of using para instead of meta. If these cases of purulent pleurisy follow after and can be demonstrated, as in so many instances they have been demonstrated, as dependent upon, I do not see why the other prefix may not with more accuracy be applied. The difficulty seems to be in demonstrating the causal relation between the two diseases. A year ago was a dark experience with me in this regard. I saw a number of cases of this purulent pleurisy, which I supposed was a sequence of pneumonia, and not necessarily in the ordinary sense of the word a complication, and which seemed to resist by reason of the severity of the pre-existing disease the best methods of treatment for purulent pleurisy. During my service in the Massachusetts General Hospital, I saw six cases in a state of great exhaustion from pre-existing pneumonic process, with a history such, that there was every reason to believe that the clinical history furnished was accurate, and leaving the patient in such shape that it was impossible to bring out a good result by the most careful treatment for the succeeding empyema. I believe that if it had not been for the extreme degree of surface inflammation, we should not have seen those empyemas, nor such difficulty in the successful application of remedial agents. Under ordinary circumstances pneumonias are not exposed to influences such as have been prevalent in this community for four or five years. I refer to the "influenza" which is, after all, primarily, a disorder of the central nervous apparatus, and which has modified in no small degree the hitherto observed natural order of diseases, notably the pneumonias and the continued fevers — particularly in the direction of a lessened percentage of favorable results. These collections of pus seem to me to deserve more nearly the name of pleural abscess, than empyema, meaning by that a localized process which would be followed by good result with the ordinary means used to evacuate pus, and that the resection of ribs, and the use of the drainage-tube would be found not to be demanded, in anything like the percentage of cases ordinarily called empyema.

DR. H. JACKSON: I felt as I came in to-night that empyema as seen in children should be classified rather differently from the empyema seen in adults. Pleural exudation in children in a pretty large proportion of cases is purulent. The exudation, as I have seen it in children, often comes on gradually without marked constitutional symptoms, often coming on so gradually that there may be a large exudate in the pleural cavity without giving rise to severe dyspnea. In children I have certainly not diagnosticated the pre-existence of a pneumonia. Dr. Withington, in speaking of cases of empyema at the end of his paper, spoke of a large number of them as following pneumonia in children. In adults my experience with empyema has been small; I have notes of only four cases to draw from. Two of them followed a pneumonia, in each case not what we speak of as a typical frank pneumonia, but a pneumonia of a portion of a lobe; one of them a pneumonia following a septic puerperal case that I saw in a dispensary district, and the other a pneumonia where the fever was slight, where only a portion of the lung was affected. In the two other cases, in one there was no history of any pre-existing disease, and the fourth, an examination of the lung and aspiration of the fluid, showed it to be tubercular. There were signs of consolidation in the lung. The puerperal case had pneumonia of a violent type and empyema, and proved fatal.

As to the organisms found in empyema, Prudden gives a list of twenty-four cases of empyema. Of these, eleven were due to the pneumococcus, eight being due to the streptococcus, the empyema being an intercurrent affection in a general septic process. Of the other cases, one was tubercular, and in four various organisms were found, the empyema being secondary to perforation of the lung. I have not had the opportunity of seeing empyema follow an ordinary frank pneumonia of the whole lobe of the so-called sthenic type.

DR. H. F. VICKERY: It has been a trouble to me in treating cases where there is consolidation and also liquid outside of it to know when to endeavor to remove that liquid. It has seemed to me personally that a small amount did a good deal of harm by increasing the dyspnea, and yet my efforts to relieve the patient by removing the fluid have not been very reassuring. If you get it out early when it is still serum, it seems as if the raw pleura caused great pain. In the case of two patients I should like to be perfectly certain that it did not hurry their death. I think they would have died anyway. I got out a scanty pint of fluid in each case, and it did not afford the relief I expected. I do not know how Dr. Withington has made up his mind about that subject.

DR. WITHINGTON: In regard to Dr. Vickery's question, my feeling has been if the fluid were purulent and in any considerable amount it usually afforded some relief to the patient to aspirate it, and if it were serous fluid and large enough in amount to add very materially to the embarrassment of the respiration, then remove it. I think that a moderate amount of serous effusion in pneumonia is not of much consequence. It is not a complication, not a different thing engrafted upon the pneumonia, but simply a manifestation of the pneumonic bacterium in the pleura.

In regard to Dr. Mason's remark about the greater frequency of empyemata as a result of influenza, it ought to be said, on the other hand, that some of these cases which I have taken from the records of the hospital date back before this last epidemic visited us. Furthermore, the cases which Ewald speaks of in his compilation in the *Charité Annalen* of 1874 were in a time when epidemic influenza was not rife.

The question of nomenclature between parapneu-

monic and metapneumonic empyema is one which might be open to discussion, but the important fact in either case is the recognition of the relation of the empyema to the pneumonia. Whether it occurs along with it, as would be indicated by the term parapneumonic, or whether it occurs subsequently, as indicated by metapneumonic, might be perhaps open to some discussion. I have adopted the term metapneumonic, because it seemed to me that in most of these cases it was a matter of sequence rather than of simultaneous development. Many of these cases showed a typical resolution during the pneumonia, and after that a secondary rise and marked interruption of the progress of convalescence which was due to the development of the empyema after the crisis of the pneumonia itself had passed.

I believe Gerhard first used the term metapneumonic empyema, and it seemed to me a pretty fairly descriptive term.

I did not go into the question of treatment at all; but it seems to me the hint Dr. Mason gave is an important one as to the undesirability of removing a patient in the hospital down one or two flights of stairs and across to another wing of the hospital for operation when he is in a condition of exhaustion, as he is likely to be in with pneumonia and with the additional burden of a chest full of pus. Operation could be done in bed without the patient being transferred for that purpose. In other words, if you had such a patient in private practice, you would not subject him to such violent usage as would be involved in moving, and it is equally desirable in hospital practice that he be spared the same additional burden.

## THE NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting, held at the New York Academy of Medicine, Tuesday evening, November 6, 1894, DR. EDWARD D. FISHER, President, in the chair.

DR. JAMES J. PUTNAM, of Boston, briefly reported the histories of

### FOUR CASES OF BRAIN SURGERY

recently coming under his observation. In all of these cases the chief symptoms were headache, nausea, vomiting and optic neuritis, and operation was advised for the purpose of relieving pressure. The first patient, a comparatively young man, did not recover from the effects of the ether, and died about five hours after the operation. No autopsy was permitted, but from an examination of the brain made through the opening in the skull evidences of a large hemorrhage underneath the cortex were found. The second case was that of a young girl who died during the etherization, before an incision had been made. At the autopsy three tumors were found in the situation where the skull had been about to be opened. In the third case the patient's symptoms were markedly relieved by the operation. In the fourth case a tumor of the cortex was found, and a large cyst underneath the cortex: the latter was emptied, but it rapidly refilled, and during the past few days there has been some oozing of brain substance from the wound, and the patient is likely to do badly. These cases, the speaker said, go to show the dangers that attend opening the skull, which is usually regarded as a comparatively simple operation.

DR. M. ALLEN STARR gave an

### EXHIBITION OF MICRO-PHOTOGRAPHS OF NERVE CELLS (GOLGI'S STAINS).

These photographs were made by Dr. Edward Leaming, Instructor of Micro-photography at the College of Physicians and Surgeons, from specimens prepared by Mr. Strong, in the laboratory of the Biological Department at Columbia College. They showed various portions of nerve tissue, some stained by Golgi's method and others by a modification of that method employed by Mr. Strong. These micro-photographs, Dr. Starr said, were exhibited this year at the British Association at Oxford, and received a good deal of favorable comment. One of them, showing the Purkinje ganglion-cell, took the prize in London for the best exhibit of micro-photography.

DR. C. L. DANA read a note on

### A CASE OF ACUTE POLIOMYELITIS IN A HEN.

The speaker stated that during the past summer, in the months of July and August, there occurred in the neighborhood of Rutland, Vt., an epidemic of anterior poliomyelitis. Dr. Caverly, the health officer of the State, said that during this epidemic horses and fowls became affected, and on September 18th he sent to Dr. Dana a large Plymouth Rock hen for bacteriological purposes. This fowl, on its arrival here, was paralyzed; and the owner of the flock, a physician, reported that several had died, the symptoms being similar to those noted in this one. The hen was taken to the Carnegie Laboratory, and a careful clinical examination made, which revealed a paraplegia (not quite complete) and some paralysis of the wings; the head and neck muscles were not affected; there was no anesthesia. Dr. Dunham, who conducted the bacteriological examination, inoculated several culture tubes from the spinal cord and meninges, and also took several sections from the cord and made smear stains, all with a negative result. The spinal canal of the animal was opened, and no evidence of meningitis was found, nor were there any signs of hemorrhagic extravasation. On being placed in Müller's fluid and stained, a distinct area of softened tissue was seen in the central part of what might be termed the lumbar region of the cord. The destructive process was quite extensive; the congestion was intense, and there were several hemorrhages. From the appearance of the cord it appeared that there had been an acute exudative inflammation, and that the process was so severe that necrosis came on before the inflammatory reaction; hence it is practically a case of acute infectious softening rather than myelitis. In conclusion, Dr. Dana said that while this case might not have any actual value, yet to a certain extent it corroborated the infectious theory of anterior poliomyelitis, and, so far as it went, it supported the view that in this disease the changes were primarily vascular and not parenchymatous.

DR. PUTNAM stated that at an autopsy made in a case of anterior poliomyelitis of two months' standing in an adult, he found that the necrotic process was distinctly confined to the area immediately surrounding the vessels.

DR. STARR stated that while on a visit to Vermont last summer, he saw a number of the cases of anterior poliomyelitis referred to by Dr. Dana. Within a radius of perhaps twenty-five miles, about 160 cases of

the disease occurred between the 25th of July and the 1st of September. Dr. Starr said he saw about a dozen of these cases. The epidemic was first regarded as one of cerebro-spinal meningitis; but from the lack of sensory symptoms and the peculiar distribution of the motor symptoms, the speaker said he regarded them as true cases of anterior poliomyelitis. Sensory symptoms were present in some of the cases; but he has often found an anterior poliomyelitis in children over the age of twelve years and that hyperesthesia and stiffness of the muscles are among the first symptoms complained of.

Dr. B. Sachs said that in France the tendency has been to regard anterior poliomyelitis as epidemic. Epidemics of the disease have been observed in Stockholm. In his own practice he has noticed that by far the larger number occur during the warm weather. It is probable that we must include this affection among the acute infectious diseases which are epidemic, or rather endemic. He has observed cases where it was difficult at first to say whether the disease was cerebro-spinal meningitis or anterior poliomyelitis. In several cases of the latter disease in the very early stage, pain along definite nerve tracts was a very characteristic symptom.

Dr. A. Jacobi stated that last August he received a letter from Dr. Caverly regarding this epidemic in Vermont, in which he described a number of the cases, particularly emphasizing the fact that there was a good deal of hyperesthesia. Basing his conclusion on these data, Dr. Jacobi said, he expressed the opinion that the epidemic was one of cerebro-spinal meningitis, as the manifestations of that disease differ widely at times. Since then, however, he had received more detailed information regarding the cases from Dr. Starr, who examined a number of the patients, and he now had no doubt that the epidemic was one of anterior poliomyelitis.

Dr. A. D. Rockwell stated that two of these cases were examined by him. In one the hyperesthesia was very distinct, and he was inclined to regard them as cases of cerebro-spinal meningitis.

Dr. Starr called attention to the fact that in the classical descriptions of anterior poliomyelitis, so little mention is made of the pain and stiffness and hyperesthesia. The reason for this probably is that so few cases of the disease are diagnosticated as such until they have gone on for a week or two, and by that time the sensory symptoms have practically disappeared. If this newer pathology of the disease is correct, and it is due to a congestion of the cord, sensory symptoms are undoubtedly present.

Dr. Putnam said that in the case already referred to by him, the hyperesthesia was excessive; so much so, that he could hardly doubt that peripheral neuritis was also present. In all other respects the symptoms were typical of anterior poliomyelitis.

Dr. A. Jacobi said there are two distinct classes of cases in this disease. In one class, that referred to by Dr. Starr, there is fever and hyperesthesia at the beginning, but these symptoms are readily obscured in cases where the myelitis comes on during the course of another disease, such as scarlet fever, pneumonia, etc. The acute symptoms are ascribed to the latter disease, upon recovery from which it is found that the child is paralyzed. In the other class of cases, and probably the large majority are of this character, the child is put to bed quite well, and when it is taken up in the morning it is found to be paralyzed; there is no fever and no hyperesthesia; there is not even an outcry in the night.

Dr. Landon Carter Gray said he agreed with Dr. Jacobi that cases of anterior poliomyelitis like those last described were very commonly met with; yet there were a certain number where the patients had unquestionable sensory symptoms, which we were often apt to attribute to a neuritis. It was a fact that this disease usually occurred during the hotter months. This subject was carefully studied some years ago by Drs. Weir Mitchell and Sinkler; they also showed that chorea was not dependent on temperature, but rather on barometric fluctuations.

Dr. G. M. Hammond inquired whether the diagnosis in the hen was based on the clinical symptoms or the pathological condition of the cord. In anterior poliomyelitis we were apt to associate a certain group of symptoms with certain pathological changes in the cord. In the microscopical sections exhibited by Dr. Dana the anterior horns appeared to be symmetrical, and the changes did not exactly resemble those we found in the true disease.

Dr. Dana replied that in some of the sections, which he had been unable to bring with him, the lesion in the cord was very marked. In some there was a distinct loss of substance, with softening and hemorrhage.

The President said that in the differential diagnosis between anterior poliomyelitis and cerebro-spinal meningitis, the extreme muscular atrophy which we find in the former would not be so apt to be present in the latter. The electrical reactions, too, might aid us. Sensory symptoms, he thought, were often present in anterior poliomyelitis, and were apt to be overlooked.

### SOME OF THE IMPORTANT ASPECTS OF THE THERAPEUTICS OF DISEASES OF THE NERVOUS SYSTEM.

Dr. James J. Putnam, of Boston, read an interesting paper on this subject. The main portion of his paper was devoted to a critical study of psychical therapeutics, or mental influence in certain forms of nervous disease with special reference to neurasthenia. This method of treatment, systematically carried out, often produces excellent results, not alone in functional, but even in organic nervous disease. Among the methods of psychical influence employed by him, the author mentioned static electricity as one of special value. As regards electro-therapeutics in general, he is not prepared to accept the dictum of certain French writers, and assert that its benefit is wholly due to its influence on the mind. Among other forms of mental influence, Dr. Putnam mentioned waking and hypnotic suggestion: as regards hypnotism, he stated that while he is not particularly in favor of it, the time has come when we ought to recognize what there is of value in it. This agent should never be employed excepting by one who is skilled in its use, or, if the patient's own physician undertakes it, he should be content to induce a moderate degree of hypnotism. In one case coming under his observation, a young woman with spastic paraplegia of several years' standing, numerous attempts made to hypnotize her never succeeded beyond the production of the first stage; through suggestions made to her while in this condition she partially regained the use of her legs, and the improvement has been permanent.

Among other therapeutic measures referred to by

the author, which he has found valuable, especially among dispensary patients, where the need of better methods for the treatment of nervous diseases has long been felt, were gymnastics, including the formation of classes for calisthenics, massage and hydro-therapeutics. During the past year he has treated fifteen cases of chronic spinal sclerosis by suspension, a method of treatment which he regards as wholly empirical. In almost every instance these patients declared themselves improved, both as regards eyesight and general condition.

In concluding his paper, Dr. Putnam stated that during the past few months he had tested the Flechsig treatment of epilepsy by means of large doses of opium; and he referred to a paper on this subject by Dr. Joseph Collins (*New York Medical Record*, September 22, 1894). The treatment was employed in ten cases; in none of them were the attacks wholly checked, but in all of them an improvement was noted. The opium was never pushed beyond ten grains daily.

DR. GRAY said that in some patients there is such an admixture of the symptoms of neurasthenia, hypochondriasis and hysteria that it is difficult to distinguish one condition from the other. There are, on the other hand, cases which we may term pure neurasthenia; and it is in these cases, as he understood the paper, that the author would employ hypnotism under the broad term of suggestion. Hypnotism, in the way that it is generally used, is an agent that we can seldom employ in neurasthenia, not only because there is a prejudice against it, but also because it is difficult to impress such patients favorably by means of it. The same thing may be said about it in hypochondriasis, while on the other hand, in hysteria its results are peculiarly favorable. As regards the value of electro-therapeutics, Dr. Gray said he was firmly convinced that the benefit following its employment in certain conditions was by no means confined to its influence on the mind of the patient. He had over and over again seen cases of neuritis in an advanced stage improve under the galvanic and faradic currents. He had seen marked benefit follow the use of this agent in many cases of anterior poliomyelitis and muscular atrophy.

DR. WILLIAM H. THOMSON referred to the value of newness or change as a psychical therapeutic measure in nervous diseases, and narrated the histories of a number of cases in which remarkable improvement followed the change of scene and surroundings.

DR. SACHS said it was claimed by some that hypnotism had not met with the reception in America which it deserved, and that one reason for this was that we were still subject to the old idea that the physician must prescribe; that we were altogether too fond of drugs. Personally, he regarded it as a therapeutic measure which was of value in comparatively few cases. After a thorough and impartial trial, his own experience with it had been anything but satisfactory.

DR. MARY PUTNAM JACOBI stated that she had found static electricity almost a specific for the purpose of dissipating muscular pains, whether rheumatic, hysterical or otherwise, even if such pain had entirely resisted the galvanic or faradic currents.

DR. ROCKWELL said he had employed statical electricity for many years, and expressed the opinion that its value had been very much over-estimated; its slight quantity gave it little value as compared with other forms of electricity.

DR. STARR said it seemed to him that the reason why Dr. Weir Mitchell's rest treatment was so successful was that it combined most of the different elements which had been mentioned by the various speakers. There was first the expectation of taking a cure which had been of benefit to others; this was combined with a trip to Philadelphia, a change of scene, and an entire change in the daily routine of life. The speaker also referred to the value of hydro-therapeutics, which made an intense mental impression on the patient.

DR. MARY PUTNAM JACOBI said that one writer, probably humorously inclined, had made the assertion that the beneficial effects of hydro-therapeutics were more pronounced in France than in England, because no French person ever takes a bath.

DR. JOSEPH COLLINS said he recently had the opportunity of discussing the Flechsig treatment of epilepsy with its originator, who, although not so enthusiastic regarding it as he was at first, still considered it of great value.

DR. PUTNAM then closed the discussion.

At the close of the discussion, a vote of thanks was given to Dr. Putnam by the Society for his interesting and able paper.

## Recent Literature.

*The Medical News Visiting List for* 1895. Weekly (dated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year; and Perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-Patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book, with pocket, pencil and rubber. Philadelphia: Lea Brothers & Co. 1894.

The Medical News Visiting List for 1895 has been thoroughly revised and brought up to date. The text contains useful data for the physician and surgeon, including an alphabetical Table of Diseases, with the most approved remedies and a table of doses; sections on examination of urine, artificial respiration, incompatibles, poisons and antidotes, diagnostic table of eruptive fevers, and the ligation of arteries. The classified blanks hold records of all kinds of professional work, with memoranda and accounts. It is one of the most convenient of the visiting lists published.

*Dissections Illustrated.* A Graphic Handbook for Students of Human Anatomy. By C. GORDON BRODIE, F.R.C.S., etc. With plates drawn and lithographed by PERCY HIGHLEY. In four parts. Part III, The Head, Neck and Thorax. London & New York: Whittaker & Co. Macmillan & Co., Publishers.

We have already spoken of the first two parts of this work. The dissections are beautiful and they receive full justice in the colored illustrations. The worst that is to be said in criticism is that the style of anatomy is that of the older English school.

NEW EDITOR OF THE ARCHIVS FÜR KLINISCHE CHIRURGIE. — Professor Gussenbauer, of Vienna, has been chosen to take the place of the late Professor Billroth on the editorial staff of this journal.

THE BOSTON

# Medical and Surgical Journal.

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## REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES NAVY.

THE report of the Surgeon-General of the United States Navy embraces a "statement of the condition of the naval hospital fund, the naval medical establishment and other matters of interest pertaining to the duties of the Bureau of Medicine and Surgery." Certain of the *other* matters cannot fail to interest every one who is interested in the welfare of the new navy of which we have heard so much during the last few years.

One reads and hears so much concerning the *personnel* of the navy that the little the surgeon-general has to say on the subject of recruiting naturally attracts attention; and under that head one reads as follows: "Enlistments on sea-going ships should be prohibited by regulation, from the fact that many of our new ships are unprovided with suitable accommodations for such examination, some of them having no examining-rooms or sick-bays, and even in those having sick-quarters they are entirely inadequate for the proper performance of this work."

There is something quite startling about this lack of accommodation for the sick and wounded. It is entirely at variance with the forethought to be expected; and one looks with interest through the rest of the report to see what further can be found regarding sick-quarters in our new vessels which have been held up as a source of national pride.

The next information on the subject is given under the heading of sick-quarters on board vessels of war, where it is stated that "on board of ten vessels no quarters are designated for the treatment of the sick and wounded; in the case of the *Minneapolis* the omission was probably due to an oversight, as this vessel was designed on similar lines to her sistership, the *Columbia*." Some of the reports from the different vessels give more particulars. The medical inspector's report on the U. S. S. *New York*, contains the following: "The sick-bay is in the same part of the ship that it has been for ages past, in the bow, on the berth-deck, having only a torpedo operating-room forward of it. . . . The forward torpedo is operated through the sick-bay while the blacksmith's forge is overhead. The noise of the huge cables running through the steel pipes that pass through the sick-bay is deafening, causing the patients to hold their heads in agony. . . . The operating-room, so called, is the bath-room and water-closet." The surgeon of the *Detroit* reports as follows: "The ship has no sick-bay. This is a most deplorable fact to contemplate on board of any sea-going ship; bad enough where the berthing spaces are sufficiently large and well ventilated to give fair comfort to men in good health, and where the sick may be isolated by temporarily depriving others of their regular berths, but in a ship of this class where every dry, ventilated and not overheated space is crowded beyond its healthful capacity, the absence of a proper place for the treatment and care of the sick is not only a source of annoyance and discomfort to others, but is fraught with no little danger to the unfortunate sailor."

These startling statements are given in the very words of their writers, and represent a strange state of things — which evidently does not exist without a protest on the part of the surgeon-general. "A special report relating to the importance of providing suitable accommodations on board of our ships for the care and treatment of the sick and wounded of the navy has already been submitted to the Department. The plans of all vessels in commission, undergoing construction and nearing completion, have been carefully examined with a view of selecting suitable location for sick-quarters, and recommendations made when required."

The medical inspector on the *San Francisco* speaks pleasantly of the naval militia, as follows: "They came on board full of enthusiasm and good-will, and while here devoted themselves to their duties and embraced every opportunity for the acquirement of a knowledge of the exercises of a vessel of war. The surgeon of the Massachusetts battalion came with them. He held a regular sick-call, and used his own medicines and instruments."

The "Department of Instruction" in connection with the U. S. Naval Laboratory at New York, is spoken of in the most routine manner. A system of instruction for assistant-surgeons immediately after passing a successful examination for admission into the medical corps of the navy, was created by a regulation issued by the Department over a year ago. Following the nomenclature elsewhere adopted, it might be called the Naval Medical School. It would be of general interest to know a little more about the work expected of the young assistant-surgeons and the advantages for post-graduate study given them. At the last meeting of the Association of Military Surgeons of the United States it was stated that the medical officers of the navy would gladly see the privileges of this school extended to the officers of the naval militia.

## THE CITY INSANE ASYLUMS ON WARD'S ISLAND, NEW YORK.

ON December 26th, the State Commission in Lunacy, of which Dr. Carlos F. MacDonald is chairman, made public the report of the investigation into the condition of the city asylums for the insane on Ward's Island, which it commenced last summer. In May, last, charges were formulated against the administration of these institutions, and, in consequence, the Mayor addressed a letter to the Commission, asking an immediate investigation. Regarding the charge that the Commissioners of Charities and Correction were negligent of their duties and had diverted moneys intended for the erection and repair of asylum buildings to other purposes, the report finds that the Commissioners failed of effective supervision by joint visitation and inspection, but, in view of the large number of institutions under their charge, that they did the best they could under the circumstances. As to the incompetency, neglect and inefficiency of the General Superintendent and other medical officers, the report finds the charges not sustained and commends all these officials. The report also considers inadequate and biased the testimony in relation to the character and conduct of the nurses and attendants. It maintains that, despite the safeguards of the probationary term and the civil-service examination, an unsuitable person will occasionally gain admittance to the service, and that while in certain occasional instances cases of neglect and ill-treatment of patients were brought to light, the offender was always promptly discharged when the facts became known to the Superintendent. As a rule, the attendants were found faithful to their trust and deserving of the confidence of their superior officers.

The report goes on to state that the attendants were justified in certain complaints they had made and condemns the proportion of attendants (one to sixteen patients) as entirely inadequate and in marked contrast to the proportion in the State hospitals for the insane. It sustains the charges made as to the insufficiency and poor quality of the food furnished, and finds fault with the character and amount of the furniture, clothing and bedding provided. The charge regarding a scarcity of alcoholic stimulants is not sustained, but the supply of medical and surgical appliances is found to be not as complete as it should be. Regarding the existence of scurvy and the overdosing of patients, the Commission does not think the evidence produced sustains either charge, but it does condemn the use of dangerous medicines in such large doses as in certain instances were indicated in the testimony. The charges that the female patients were overworked and that infectious cases were not properly isolated are not sustained. It is admitted, however, that patients suffering from pulmonary tuberculosis were not isolated, but this is regarded as impossible on account of the overcrowded condition of the wards.

The charges of overcrowding, dilapidation, defective plumbing, ventilation, etc., are fully sustained, and the asylums are found to be overcrowded to the extent of 2,500 patients. The various charges having been disposed of, the report proceeds to discuss the causes of the existing abuses, and the conclusion is arrived at that they are due to the system under which these institutions are organized and administered, rather than to any particular individual officials or set of officials. In conclusion, the report presents a strong argument in favor of the transfer of the city's asylums to the care of the State.

## THE BERLIN MEDICAL SOCIETY ON DIPHTHERIA ANTITOXIN.

THE Berlin Medical Society has been engaged in a discussion of the method of action and of the merits of the serum treatment of diphtheria. Dr. Hansemann, of Professor Virchow's pathological laboratory, led in an attack upon the diagnostic, etiological value of the Klebs-Löffler bacillus, and the value of the serum as a specific remedy.

Virchow pronounced the theory forming the basis of Behring's entire antitoxic theory to be a fallacy, but at the same time acknowledged that "all theoretical considerations must give way to the *brute force* of figures." There is certainly much "brute force" in the figures adduced by Professor Virchow as taken from the records of the Kaiser and Kaiserin Friedrich Hospitals. In June and July nearly all diphtheria cases were treated with the serum, and results were remarkably good, there being only eight deaths in 63 cases; the supply of serum then gave out, and in 109 cases treated without serum during the next seven weeks there were 55 deaths; a new supply of serum was then obtained and in 81 cases treated with it during the next six weeks there were only 12 deaths. In the whole period, 533 cases were treated — 303 with serum, 230 without. Among the former there were 13.2 per cent. of deaths; among the latter, 47.8 per cent. of deaths.

In view of such results, Professor Virchow naturally holds, notwithstanding his opinion as to the fallacy of the theoretical basis of the antitoxin treatment, that it is the duty of every practitioner to use the serum in diphtheria.

## THE POSITION OF THE PHILADELPHIA HOSPITAL TRUSTEES.

WE commented briefly last week upon the extraordinary action of the trustees of the Philadelphia Hospital in summarily dropping from the hospital staff Dr. Judson Daland, for apparently no other reason than that he postponed active therapeutic measures in the case of a malarial patient in order to study the case and verify the diagnosis by the aid of modern scientific methods.

The question thus presented is a much broader one than its mere effect upon an individual. It concerns the proper relation of hospitals to the public, and the

duties of their medical and lay officers to both hospitals and the public. We are glad, though not surprised to learn that it is thus regarded by Dr. H. A. Hare, whom the trustees of the Philadelphia Hospital appointed to the vacancy so summarily made, and who has declined an appointment given under such circumstances. Any physician holding his profession in honor, must perforce do the same. We hope a further study by the trustees of this hasty and ill-considered action, in all its bearings, will lead them to its revision in a liberal, comprehensive, intelligent spirit, and to the reinstatement of Dr. Daland.

## MEDICAL NOTES.

CHOLERA IN ARGENTINA. — An epidemic of cholera is reported to have broken out at Rosario and Colastine in Argentina. Although there have been but few deaths the disease has been determined to be true cholera, and the ports have been closed against traffic.

AFTER-EFFECTS OF ANTITOXIN. — Rembold reports in the *Deutsche Med. Wochenschrift*, for December 20th, two cases out of six treated with antitoxin which showed the urticarial eruption, with constitutional symptoms, following the antitoxin treatment. These cases were in every respect similar to those reported by Cuyrim and Zublinski, and noticed in the JOURNAL for December 20th. In one of these cases though the effect of the antitoxin in the acute stage of the diphtheria was markedly beneficial, post-diphtheritic paralysis of accommodation ensued.

COMMERCIALIZATION OF SERUM THERAPY. — It is reported that the shares in the Höchst establishment for the production of antitoxin rose several points recently on the Frankfort Stock Exchange, on the strength of a report that the works were about to put on the market a typhoid antitoxin discovered by Behring! The results of such commercialization of the name of Koch are too recent to be forgotten.

A NATIONAL DIPHTHERIA COMMISSION. — According to the *Journal of the American Medical Association*, Representative Goldzier, of Illinois, has prepared and will endeavor to secure the prompt adoption of a joint resolution for the creation of a National Commission for the investigation of the antitoxin treatment of diphtheria.

A SNAKE STORY VERIFIED. — A surgeon who doubted the story of the male python in the London Zoölogical Garden having swallowed his mate, and claimed that the reptile might have in some way crawled out of the cage, is reported by the *Medical Press* to have had his doubts set at rest by the discovery of several vertebræ of the defunct reptile among the feces of the survivor. The surgeon now has the vertebræ in his possession.

A PUGILIST'S VIEWS ON FOOTBALL. — Mr. Robert Fitzsimmons, a pugilist, who in a recent exhibition dealt his sparring partner a fatal blow, has been looking up the records, and informs the public that during the last ten years only twenty-three men have died of injuries received in the prize-ring, and that during the months of November and December there were twelve fatal football accidents. He therefore concludes that football is fifty times as dangerous as sparring. In his calculations he evidently forgets that inasmuch as November and December are the only two months in which football contests take place, during those two months there are probably more men engaged in playing football during one season, than there have been engaged in professional pugilistic contests for the last ten years.

A FATAL CASE OF CHICKEN-POX. — Nisbet reports, in the *Australasian Medical Gazette*, for November 15, 1894, a case of uncomplicated chicken-pox in a child eight and a half months old, which proved fatal, owing, in his opinion, to the fact that the eruption covered every part of the body, even the palms of the hands and soles of the feet, and produced practically the same effect as an extensive burn. On the seventh day of the disease spots appeared in the mouth, which changed to irritable ulcers, causing great distress. Death occurred on the tenth day. Dr. Nisbet thinks that there was no question as to diagnosis, as four older children in the same house were ill with the disease, and there was an epidemic in the town at the time. Collie, in "Quain's Dictionary of Medicine," states that "no physician has recorded a fatal case of chicken-pox."

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, December 26, 1894, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 86, scarlet fever 62, measles 50, typhoid fever 12. During the week ending at noon, January 2, 1895, the following cases were reported: diphtheria 64, scarlet fever 54, measles 51, typhoid fever 4.

A DANGEROUS COSMETIC. — A four-ounce bottle of a certain face bleach examined by the State Board of Health during November was found to contain twenty-seven grains of corrosive sublimate.

DEATH OF A CENTENARIAN. — Mrs. Alma Ida Reynolds died at East Dedham, December 22d, aged one hundred years and eleven months. She was born in Eastford, Conn., in 1794, and was in good health until the last year of her life.

SEMI-CENTENNIAL OF THE DISCOVERY OF ANESTHESIA. — The Harvard Odontological Society, in conjunction with the Harvard Dental Alumni Association, held a meeting on December 26th, for the purpose of celebrating the discovery of anesthesia by Horace Wells, fifty years ago.

THE NINETEENTH REPORT OF THE SALEM HOSPITAL. — This report, that for the year 1893, shows that during that year 318 patients were treated, 178 medical and 140 surgical. Dr. Hardy Phippen was

appointed a member of the surgical out-patient staff. Five pupils were graduated from the training-school for nurses, and 531 cases were treated at the out-patient department during the year.

THE AMERICAN CHEMICAL SOCIETY. — This society held a general meeting in Boston on December 28th and 29th. It was reassuring to learn from the speech of the retiring president that chemistry had not yet reached the stage at which synthetic food products could be produced, and that the "beefsteak of the future," at least the immediate future, would not take the form of a compressed tablet, manufactured by some well-known and reliable firm, and "containing all the nutritive properties of a pound of beef." As an advantage of these tablets it would undoubtedly be claimed, that "inasmuch as our tablets are purely synthetic in composition, by their substitution for beef all danger from bovine tuberculosis is eliminated." With this prospect in view the work of the Cattle Commission would be viewed as an entirely unnecessary expense.

A LABORATORY FOR THE MASSACHUSETTS CATTLE COMMISSION. — The great increase in laboratory work necessitated by the attack on bovine tuberculosis, has made it necessary for the Cattle Commission to establish a laboratory to be devoted exclusively to its own use. The work has heretofore been done chiefly at the pathological laboratory of the Harvard Medical School, and at the Massachusetts Agricultural College at Amherst. The new laboratory is being fitted up at 50 Village Street, the present headquarters of the board, and the work is to be under the direction of Dr. W. F. Whitney.

THE ATTITUDE OF THE FARMERS TOWARD THE CATTLE COMMISSION. — Reports from various parts of Massachusetts indicate that in proportion as the farmers have the opportunity to see the work of the cattle commissioners, and become acquainted with the certainty of the tuberculin test, they realize the importance of having their herds purified. The protests about the unreliability of the test, and its alleged danger to healthy cattle are becoming fewer, and the owners of herds are apparently realizing that unless they show a willingness to have tuberculosis stamped out they will stand in a very bad light before public opinion in comparison with the more intelligent cattle owners, some of whom at their own expense had their herds examined before they were obliged to do so by law. On the question of compensation, however, most of the farmers still insist that they ought to receive for the loss of a diseased animal the full value of a healthy one.

## NEW YORK.

THE ASSOCIATION OF AMERICAN ANATOMISTS. — The seventh annual meeting of the Association of American Anatomists was held at the College of Physicians and Surgeons on December 28th and 29th. Among those who were present and read papers were Drs. Thomas Dwight, of Boston, Burt G. Wilder, of Cornell University, Harrison Allen, of Philadelphia, D. S. Lamb, of Washington, and E. C. Spitzka, of New York.

DEATH OF DR. DETMOLD. — The venerable Dr. William Detmold, the distinguished surgeon, died December 26th. Dr. Detmold was born December 27, 1808, in Hanover, where his father was physician to the king. He was graduated at Göttingen in 1830, and came to New York in 1837. He was one of the first to practice orthopedic surgery in this country and established an orthopedic clinic at the College of Physicians and Surgeons. At the time of his death he was emeritus professor of clinical and military surgery at that institution. When the New York County Medical Association was organized in 1884, Dr. Detmold was selected as its first president, and he was also one of the founders of the New York State Medical Association.

DIPHTHERIA AT THE MOUNT VERNON BRANCH OF THE NEW YORK INFANT ASYLUM. — Since the end of September diphtheria has prevailed to a considerable extent at the Mount Vernon Branch of the New York Infant Asylum, and it was found necessary to set apart three of the cottages at the institution for those suffering from the disease. Up to the present time there have been over eighty cases and about sixteen deaths. Recently antitoxin has been used in the treatment (a portion of the supply having been obtained from Berlin and a portion from the New York Pasteur Institute), and, while the number of cases thus treated is not large, no death is said to have occurred among them. Dr. Peck, one of the resident physicians, who was attacked by the disease a short time since, was among those treated with antitoxin.

AN EXPENSIVE ATTACK OF RABIES. — On December 21st a rabid dog bit no less than sixteen persons in the town of Salem, N. J., and of these seven are now under treatment at the New York Pasteur Institute. Others of those bitten will also be sent on for treatment, and it is stated that the total expense, amounting to over one thousand dollars, will be borne by the Salem Glass Works Company.

EXAMINATION OF CATTLE FOR TUBERCULOSIS. — The State Board of Health has made a report of the work accomplished during the first year under the law relating to examination of cattle for tuberculosis. "There can no longer be a reasonable doubt," the report says, "that cattle suffering from tuberculosis are extensively distributed through the dairies of the State, forming centres of infection in their respective herds; that the milk from such cattle is bad, and in many cases, though not acting perniciously upon all who partake of it, is still sufficiently dangerous to warrant as earnest precautions and as effective prophylactic measures as in the cases of small-pox, typhoid and cholera. The appropriations made, though incommensurate with the magnitude of the undertaking, have been sufficient to show to some extent the vast proportions of this menace to life and health and the need of adequate resources to intelligently meet and overcome it."

## Miscellany.

### THE ANTITOXIN TREATMENT IN LONDON.

Washburn, Goodall, and Card, in the *Lancet* for December 22d, report the results of 72 cases of diphtheria treated with antitoxin in London between October 23d and November 27th. In 61 of the cases the Klebs-Löffler bacillus was found in the fauces. In 45 cases streptococci were associated in large numbers. There were 14 deaths, or 19.4 per cent. The average mortality in the same hospital during 1893, and up to October 22, 1894, was 38.8 per cent. The mortality of the 72 cases immediately preceding the beginning of the antitoxin treatment was 38.8 per cent. In the opinion of the writers the cases treated with antitoxin were of more than average severity. From October 23d to November 27th, the mortality from diphtheria at three other London hospitals where antitoxin was not employed was 33.3, 32.2, and 23.3 per cent. Tracheotomy was performed in nine of the cases treated with antitoxin, three of which died and six recovered. In 13 previous series of nine tracheotomies, the recoveries had varied from zero to four, the average of the recoveries per series being 1.75. According to the observations of the writers, and contrary to most previous statements, the association of the streptococcus did not appear to affect unfavorably the course of the disease, or the results of the antitoxin treatment.

### A FUND FOR A BRONZE STATUE TO CHARCOT.

The pupils and former associates of Charcot in Paris and throughout France are engaged in raising a fund for the erection of a bronze statue of him in the Sàlpêtrière. This movement is receiving cordial and material support in Germany, England and Italy.

It has therefore seemed desirable to the Neurological Societies of New York and Philadelphia that the profession in America join in this testimonial, as an evidence of the eminent services of Charcot in neurology and medicine. The undersigned have been appointed a committee to bring the matter to the attention of the profession and to receive contributions, which will be duly acknowledged and forwarded to the central committee in Paris.

It is requested that all who desire to contribute to the success of this undertaking send their subscriptions to the members of the committee nearest to them or direct to the treasurer, Dr. C. A. Herter, 819 Madison Avenue, New York, before the first day of February, 1895.

E. D. Fischer, M.D., E. C. Seguin, M.D., M. A. Starr, M.D., C. L. Dana, M.D., C. A. Herter, M.D., *for New York.*
S. Weir Mitchell, M.D., Wharton Sinkler, M.D., Chas. K. Mills, M.D., *for Philadelphia.*
J. J. Putnam, M.D., P. C. Knapp, M.D., *for Boston.*
William Osler, M.D., *for Baltimore.*
Archibald Church, M.D., *for Chicago.*
C. H. Hughes, M.D., F. R. Fry, M.D., L. Bremer, M.D., *for St. Louis.*
James Stewart, M.D., *for Montreal, Canada.*
E. B. Angell, M.D., *for Rochester.*
J. W. Putnam, M.D., *for Buffalo.*
Theodore Diller, M.D., *for Pittsburgh.*
Howell T. Pershing, M.D., *for Denver.*
J. D. Hirschfelder, M.D., *for San Francisco.*

December 22, 1894.

### TREPHINING IN MENINGITIS.

Nearly coincident with the editorial in the Journal for December 20th on "Trephining for Tuberculous Meningitis," comes the account in the December number of the *International Medical Magazine* of a case of trephining for the removal of fluid in a case of acute cerebral meningitis, by B. Merrill Ricketts, M.D.

The operation, done, of course, for the relief of intra-cranial pressure, was performed on the tenth or eleventh day of the disease, in a case of meningitis following an attack of whooping-cough. The child was in very poor condition, with a high temperature, rapid pulse, pupils non-reacting, coma, complete motor paralysis, and retention of urine. No nourishment had been taken for twenty-four hours; there was paresis of the left facial nerve, and of the muscles of deglutition. Emaciation was excessive.

Two openings were made with the chisel, over the right and left parietal bones respectively. On opening the arachnoid cavity large quantities of serous fluid escaped and continued to flow. Immediately after the operation the child cried, and was able to move its limbs. The respirations fell from fifty to thirty, urine was passed freely, and sufficient nourishment was taken. The improvement continued for a few hours only, when the child began to fail, and died twenty-eight hours after the operation. The flow of fluid continued till death.

While the relief of cerebral pressure can be said to give these cases their only chance, death has so far only been postponed. Effective drainage will be found to be even more difficult in the case of the cranial cavity than in the abdominal. The impossibility of disinfecting these cavities, on account of their many ramifications and the delicate structure of their walls, in addition to their liability to rapid absorption of septic material, renders the successful surgical treatment of acute inflammation extremely difficult. Successful operations upon acute peritonitis are among the greatest rarities; and none upon acute meningitis has so far been recorded. It is a matter of extreme interest that the operative cure of chronic tuberculous inflammation, which has been accomplished in so many cases of abdominal tuberculosis, has been extended in one case to meningeal tuberculosis.

With regard to meningeal sepsis, Ricketts says: "As it is, nearly all these cases die without operation. The question now is, Will any of them be benefited or cured if operated upon during any particular time in the course of the disease?"

Although the clinical history of Dr. Rickett's case points rather to an acute tubercular than to a septic process, his remarks will apply to acute cases. It is unfortunate that cultures were not taken in either of the cases alluded to.

### A CASE OF TUBERCULAR MENINGITIS; DIAGNOSIS BY LUMBAR PUNCTURE; RECOVERY.

The cases reported in medical literature of apparent recovery from tubercular meningitis naturally admit of doubt, for it is well known that errors of diagnosis are very common. Fürbringer, in the *Deutsche Med. Wochenschrift*, 1894, No. 36, reports a case in which the diagnosis was established beyond a doubt. The case was that of a laborer, twenty years of age, who while in the best of health was taken with severe

headache and fever. Various symptoms pointing to the central nervous system led to a diagnosis of meningitis. In order to establish the diagnosis, Fürbringer performed paracentesis of the spinal canal at the level of the second lumbar vertebra; 60 c. c. of a slightly cloudy serous fluid escaped, in the sediment of which were found a few pus corpuscles and numerous tubercle bacilli. Contrary to all expectation the fever subsided after the puncture, the sensorium became clear, the headaches gradually disappeared, as well as the rigidity of the extremities and of the spinal column. Convalescence was uninterrupted and the patient was discharged cured.

Although, as is acknowledged by the *St. Petersburger Med. Wochenschrift*, November 19, 1894, the therapeutic value of the lumbar puncture introduced by Quincke, after numerous trials, still admits of doubt, the method certainly is applicable, as claimed by that journal, for diagnostic purposes, and the more so that tubercular meningitis often takes the cerebro-spinal form.

## A MINDLESS FROG.

AT the meeting of the Association of American Anatomists in New York on Saturday, December 29th, Prof. B. G. Wilder showed a frog from which, under ether, the entire cerebrum was removed on the 7th, three weeks before. It looked natural. The scar on the head was hardly visible. It can swim and jump and even balance on a cylinder while it is slowly turned, and swallow food that is placed far back in the throat. But when undisturbed it sits without motion, and presumably has no consciousness. That such a frog, while in possession of all his senses (excepting smell, the olfactory lobes being removed with the cerebrum) has no real "sense" may be seen from the behavior of a similar specimen shown the American Neurological Association in 1886. A minnow was put into the mouth. The head reached the throat and aroused the swallowing reflex; but the tail protruded from the lips and caused the frog to put up his hands to push it out. The normal frog would have decided whether the fish should go up or down. The decerebrized animal was a mere reflex machine and could make no choice between incompatible operations.

# Correspondence.

## NOTES ON ANTITOXIN.

NEWTON, MASS., December 29, 1894.

MR. EDITOR: — Within the past few weeks I have used in three cases the diphtheria antitoxin, made by Dr. Paul Gibier in the Pasteur Institute of New York, as a prophylactic agent in doses of five cubic centimetres. A dermatitis has occurred about the site of injection in each case.

In the first patient, a baby of eighteen months, an erythematous eruption occurred on the day following the injection, accompanied by fever and malaise, lasting twelve hours. The injection was done in the lateral abdominal wall.

In the second case, a nurse in another family, the antitoxin was introduced into the upper and outer aspect of the left arm; and in five days a very fine scarlet papular rash appeared, attended with tremendous itching, and extending from the shoulder to the elbow. It looked, as the nurse remarked, like a limited area of scarlatina.

In the third patient, a male attendant in still another family, the injection was done by the patient in the calf of the leg, and in five days was followed by an urticarial eruption about the seat of the puncture.

There were no systemic symptoms in either of the two latter cases. While such unpleasant features should certainly not lead us to sacrifice the advantages to be gained by antitoxin, yet they may be worthy of mention, as in the prospectus issued by Dr. Gibier it is stated that there is "no local reaction" following its injection. On the other hand, in four cases of diphtheria where twenty-five cubic centimetres of antitoxin were injected as a curative remedy, no eruption or untoward symptoms have been noted. The syringe used is the one recommended, and furnished, I believe, by Gibier. It holds twenty-five cubic centimetres, and was made thoroughly aseptic in every instance. This syringe has a plunger, and is of metal and glass graduated. The four diphtheritic cases improved wonderfully, both as regard general symptoms and local lesions, after the use of antitoxin, which was employed on the first day of the disease, and the diagnosis verified afterwards bacteriologically by Dr. H. C. Ernst in each case. In a boy, seven years old, albuminuria and partial paralysis persisted some weeks notwithstanding the antitoxin. This boy's sister was apparently not more critically ill than he at the outset; but having no antitoxin on hand then, I sent her to a hospital, where she died on the twelfth day of general exhaustion due to the toxic infection, not having been treated with antitoxin at any period of her sickness.

The baby before mentioned, immunized with five cubic centimetres of antitoxin, had been lying all day in the same bed with a fully-developed case of diphtheria, and yet has shown no symptoms of the disease — neither have the other patients receiving prophylactic doses, although being adults this is not particularly surprising.

KENELM WINSLOW, M.D.

P. S. (December 31). Since writing the above I have had two cases of very extensive and annoying urticaria occurring in diphtheria patients innoculated seven days previous to this eruption with the New York Pasteur laboratory preparation of antitoxin. Can it be any fault of this special preparation? Is it due to the camphor contained therein and used to preserve the serum? K. W.

## SERUM THERAPY IN PARIS.

HÔPITAL DES ENFANTS MALADES,
PARIS, Dec. 18, 1894.

MR. EDITOR: — It may be of interest to your readers to learn that out of a series of 118 cases of diphtheria treated in the service of Dr. Chaillou since November 17th by means of the Roux serum, there has been a mortality of ten only, or less than ten per cent. Of these cases four should be excluded as they were of the foudroyant nature and practically moribund on admission. No auxilliary treatment is given beyond lavage of the nares. I observe that tracheotomy is seldom resorted to, intubation being given the preference. Diphtheritic paralysis as sequela is also a rare phenomenon. A. GASTON ROETH, M.D.

## A CHARACTERISTIC LETTER FROM DR. HOLMES.

BOSTON, December 23, 1894.

MR. EDITOR: — A gentleman, late of Houston, Texas, Fiquet by name, a graduate of Harvard University and Law School, failing in health, went into the business of breeding fancy cattle. At the outset, he intelligently determined, if there were a method of producing sex at will, that he would discover it. He claimed, finally, that he had done so, experimented largely, and, according to his own showing, successfully. After a time he had accumulated a large mass of printed and manuscript matter, in which he gave a detailed history of his experiments in the

direction in question. This printed and written evidence of his success, Mr. Fiquet sent to Dr. Holmes, with the request that he would bring it to the attention of physicians.

At that time I was a member of the editorial staff of the JOURNAL. The matter from Fiquet was therefore turned over to me in order that I might condense it into an editorial. I did so, and then sent my result to Dr. Holmes for his approval, which he sent me in the following thoroughly characteristic letter:

296 Beacon St., May 7, 1880.

MY DEAR DOCTOR: — I have carefully read your abstract, with which I am very much pleased, and made a few corrections, or at least suggestions, in pencil.

On the whole I think I would *not* print the passages marked in the letter of Mr. Fiquet you send me. Some will think they give too theoretical an aspect to what is a matter chiefly at present of practical experimentation.

I shall be happy to look over the proofs if you would like to have me, but I do not wish to have my name mixed up with the taurine and vaccine gallantries.

Yours very truly,

O. W. HOLMES.

When you have done with the letters, you may, if you please, send them all back to me.

Soon after discovering this letter among my papers, I met Dr. Holmes for the last time. During our conversation I asked him if he remembered the Fiquet matter, and found he had entirely forgotten it. Recalling to his mind the editorial and his note to me, I repeated to him the paragraph anent his wish to remain unmentioned. He laughed as heartily as many will who now read it for the first time.

The editorial was entitled "Production of Sex at Will," and was published in the JOURNAL for May 13, 1880.

Yours truly,

HAMILTON OSGOOD, M.D.

## THE TREND OF IMPROVEMENT IN THE PHYSICIAN BY REASON OF INCREASING COMPETITION; OR, THE HOSPITAL PHYSICIAN *VS.* THE INDEPENDENT PRACTITIONER.

PHILADELPHIA, December 20, 1894.

MR. EDITOR: — The very admirable and wholesome article by Dr. Schaefer in the *Boston Medical and Surgical Journal* of November 22d, on commercialism or tradesmanship in medicine, suggests two or three rather obvious corollary thoughts which I beg leave to present with no undue elaboration.

Dr. Schaefer seems to cry aloud, with a very bitter cry (in which we deeply sympathize), he having the commercial atmosphere of the West thick upon him. Those of us who, trained in the East, have not experienced this confusing effect upon scientific and ethical aspirations, thus exercised, will feel as keenly as he does, and deplore deeply, what seems to be an overmastering influence. True as is all he says, yet there are other results to be looked for from the conditions enumerated, and one is that keenness in competition compels our young medical men to strive for broader and deeper knowledge, and, not content with undergraduate teaching, to reach out for that special training which is only to be had by living in and doing the work of hospitals — first, by their spending years of earnest toil in dispensary services, examining and prescribing for the hordes there applying for advice, and finally seeking and getting, in proportion to their abilities, controlling positions on the working staff of those magnificent aggregations of clinical material and beneficent asylums, the large general and special hospitals. Thus, and thus only, can the highest scientific medical work be done; thus only can the highest qualities of knowledge and practical competency be perfected — in which the public is the chief gainer.

Again, in specialism, and in strict specialism only, can the most thorough knowledge be attained of the disorders and treatment of particular organs. To be sure, the man of general, all-round attainments will forever be of the utmost value in the formation of just estimates of the larger and wider considerations of such accidents as environment and differing social planes, occupations, temperaments, and varying degrees of vitality and disease tendencies. But here, indeed, is a specialism of its own, and of the very highest type, too, demanding a breadth of mind and heart far in advance of the narrower pursuits of ophthalmology or gynecology. And it is through refinements such as these that the giants of our profession exert their best influences and gain highest rewards of honors, love and gold.

This striving and competing, too, beats down the men feeble in mind or conscience, or both, and they go elsewhere and mayhap descend to lower methods, more commercial and tradesman-like. But these are only the incidental secondary effects of modern influences very conspicuous indeed to the layman and caviller.

The real balance of power, however, is the *Public*. So soon as they learn (and this process seems well underway) to realize the advantages to them of correctly, or even fairly, estimating the comparative competencies of competing men and cease to be taken in by noisy chaffery or pseudo-sciences, then their salvation will be greatly enhanced. They estimate a lawyer far more correctly than a doctor; a clergyman least well.

I fear no such calamities as Dr. Schaefer threatens. The objectionable aspects of medical practice often enough conspicuously obscure those imperishable, underlying, ethical elements inherent in the medical profession.

Very truly yours,

J. MADISON TAYLOR, M.D.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 22, 1894.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,956,000 | 720 | 240 | 12.32 | 22.20 | .75 | 6.90 | 1.20 |
| Chicago | 1,800,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 391 | 114 | 17.25 | 14.50 | 2.50 | 12.25 | 1.00 |
| Brooklyn | 1,043,000 | 369 | 124 | 13.77 | 15.66 | .54 | 9.99 | .56 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 178 | 52 | 14.00 | 17.92 | 2.24 | 6.72 | 1.68 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 89 | 19 | 3.36 | 7.84 | 2.24 | — | — |
| Cincinnati | 325,000 | 134 | 40 | 17.76 | 11.11 | 8.88 | 4.44 | — |
| Cleveland | 325,000 | 100 | 40 | 20.00 | — | 10.00 | 5.0 | 12.00 |
| Pittsburg | 272,000 | — | — | — | — | — | — | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 24 | 6 | 8.32 | 8.32 | — | — | 4.16 |
| Charleston | 65,1e5 | 31 | 13 | — | 12.88 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 35 | 16 | 22.80 | 15.40 | 2.85 | 15.40 | 2.85 |
| Fall River | 92,233 | 24 | 7 | 24.96 | 12.48 | 4.16 | 4.16 | — |
| Lowell | 90,613 | 33 | 13 | 18.18 | 3.06 | 3.03 | — | 6.06 |
| Cambridge | 79,697 | 23 | 11 | 26.10 | 4.35 | — | 17.40 | 4.35 |
| Lynn | 65,123 | 29 | 9 | 6.90 | 10.35 | — | 3.45 | 3.45 |
| Springfield | 50,384 | 24 | 4 | 12.48 | 4.16 | 4.16 | 4.16 | 4.16 |
| Lawrence | 49,900 | — | — | — | — | — | — | — |
| New Bedford | 47,711 | 21 | 11 | 23.80 | 9.52 | — | 9.52 | — |
| Holyoke | 45,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 9 | 6 | 44.44 | — | — | 22.22 | 22.22 |
| Salem | 33,155 | 13 | 1 | — | 7.69 | — | — | — |
| Haverhill | 32,925 | 6 | — | — | — | — | — | — |
| Malden | 30,209 | 13 | 3 | 7.69 | 30.76 | — | 7.69 | — |
| Chelsea | 29,806 | 12 | 3 | 8.33 | 16.66 | — | 8.33 | — |
| Fitchburg | 29,3e3 | 5 | 3 | — | — | — | — | — |
| Newton | 28,837 | 7 | 2 | 14.28 | — | 14.28 | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,384 | 12 | 2 | — | 8.33 | — | — | — |
| Waltham | 22,958 | 4 | 1 | 25.00 | — | — | 25.00 | — |
| Quincy | 19,642 | 10 | 2 | 30.00 | — | — | 20.00 | — |
| Pittsfield | 18,802 | 5 | 0 | 20.00 | 20.00 | 20.00 | — | — |
| Everett | 16,585 | 4 | 2 | 50.00 | — | 25.00 | 25.00 | — |
| Northampton | 16,331 | 8 | 1 | 12.50 | 12.50 | 12.50 | — | — |
| Newburyport | 14,073 | 4 | 2 | — | — | — | — | — |
| Amesbury | 10,920 | 2 | 0 | — | — | — | — | — |

Deaths reported 2,406: under five years of age 770; principal infectious diseases (small-pox, measles, diphtheria and croup,

diarrheal diseases, whooping-cough, erysipelas and fevers) 351, acute lung diseases 373, consumption 287, diphtheria and croup 178, typhoid fever 45, scarlet fever 38, diarrheal diseases 36, whooping-cough 16, erysipelas 10, measles 6, small-pox 3, malarial fever 3.

From diarrheal diseases New York 12, Philadelphia and Cincinnati 4 each, Providence, Fall River and New Bedford 3 each, Cleveland 2, Brooklyn, Washington and Worcester 1 each. From whooping-cough Brooklyn 6, New York and Boston 3 each, Cincinnati, Fall River, Cambridge and Quincy 1 each From erysipelas New York 5, Boston 2, Brooklyn, Nashville and Lowell 1 each. From measles New York 4, Brooklyn and Cincinnati 1 each. From small-pox Philadelphia 2, New York 1. From malarial fever Brooklyn 2, New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,458,442, for the week ending December 15th, the death-rate was 19.7. Deaths reported 3,959; acute diseases of the re-piratory organs (London) 358, measles 154, diphtheria 87, whooping-cough 57, fever 55, scarlet fever 35, diarrhea 35, small-pox (Birmingham 3, Birkenhead and Halifax 1 each) 5.

The death-rate ranged from 11.8 in West Ham to 28.9 in Oldham; Birmingham 19.3, Bradford 25.1, Croydon 13.5, Gateshead 22.3, Hull 16.9, Leeds 25.9, Leicester 21.2, Liverpool 24.6, London 18.6, Manchester 20.3, Newcastle-on-Tyne 20.9, Nottingham 17.3, Portsmouth 19.2, Sheffield 21 4.

## METEOROLOGICAL RECORD,

**For the week ending December 22d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—**

| Date. | Barometer | Thermometer. | | | Relative humidity. | | Direction of wind. | | Velocity of wind. | | We'th'r. * | | Rainfall in Inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..16 | 30.10 | 46 | 55 | 37 | 72 | 86 | 79 | Calm. | S. | 0 | 12 | C. | F. | |
| M..17 | 30.04 | 46 | 54 | 39 | 74 | 55 | 64 | S.W. | W. | 12 | 12 | O. | C. | |
| T..18 | 30.30 | 34 | 36 | 31 | 44 | 33 | 38 | W. | W. | 14 | 8 | C. | C. | |
| W..19 | 30.24 | 34 | 41 | 28 | 50 | 66 | 58 | S.W. | S.W. | 4 | 5 | O. | C. | |
| T..20 | 30.32 | 38 | 43 | 32 | 71 | 76 | 74 | S.W. | S.E. | 9 | 3 | C. | C. | |
| F..21 | 30.28 | 38 | 49 | 28 | 80 | 88 | 84 | N.W. | S. | 2 | 13 | S. | F. | |
| S...22 | 30.00 | 42 | 52 | 31 | 61 | 45 | 53 | S.W. | N.W. | 14 | 26 | O. | C. | |
| ☞ | 30.18 | | 47 | 32 | | | 64 | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall ☞ Mean for week.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 22, 1894, TO DECEMBER 28, 1894.

Leave of absence for one month is granted FIRST-LIEUT. A. N. STARK, assistant surgeon, to take effect upon his return to Fort Sam Houston, Texas.

CAPTAIN JAMES D. GLENNAN, assistant surgeon, is relieved from duty at Fort Sill, Oklahoma Territory, and ordered to Fort Snelling, Minnesota, for duty at that post.

## HARVARD MEDICAL SCHOOL.

### EVENING LECTURES.

The next lecture will be given on Thursday evening, January 10th, at 8 o'clock, by Prof. J. C. White. Subject, "The Cutaneous Features of Tuberculosis, Syphilis and Leprosy." Physicians are cordially invited.

## SOCIETY NOTICES.

THE WARREN CLUB. – A regular meeting of the Club will be held at 225 Marlborough Street, on Tuesday evening, January 8th, at 8 o'clock.

Dr. E. S. Jack: "Intestinal Obstruction."

Dr. A. C. Jelly: "Early Signs of Mental Disorder."

W. E. PAUL, M.D., *Secretary*.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. – The annual meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday, January 7, 1895, at eight o'clock, P. M.

Dr. John Homans: "The Surgical Treatment of Uterine Fibroids."

Dr. E. O. Otis: "Some Methods of Chest Examinations Supplementary to Auscultation and Percussion."

Report of the Treasurer.

Election of officers.

JOHN T. BOWEN, M.D., *Secretary*.

## RECENT DEATHS.

SILAS ATHERTON HOLMAN, M.D., of York Harbor, Me., died December 24th. He was a graduate of the Harvard Medical School, class of 1855, and served as a surgeon during the Civil War.

HORACE O. DUNBAR, of Athol, died December 27th, aged forty-five years. He was a graduate of the Medical Department of the University of the City of New York.

## BOOKS AND PAMPHLETS RECEIVED.

New Instruments. By Seth Scott Bishop, M.D. Reprint. 1894.

An Address on Appendicitis. By J. William White, M.D. Reprint. 1894.

The Annual Statistics of Manufacturers of Massachusetts, Eighth Report, 1893.

Some Statistics of Diabetes Mellitus. By N. S. Davis, Jr., A.M., M.D. Reprint. 1894.

Some Meteorological Data. By Samuel A. Fisk, A.M., M.D., Denver, Col. Reprint. 1894.

Theatre Fire Catastrophes and their Prevention. By Wm. Paul Gerhard, C.E. Reprint.

Biennial Report of the Officers of the Brattleboro Retreat for the period ending June 30, 1894.

Twenty-fourth Annual Report of the Bureau of Statistics of Labor of Massachusetts, March, 1894.

Cauterization of the Nares and Accidents that may Follow. By E. Fletcher Ingals, A.M., M.D., Chicago. Reprint. 1894.

Symphyseotomy *versus* the Induction of Premature Labor. Uterine Fibroids. By Charles P. Noble, M.D., Philadelphia. Reprints. 1894.

Forty-second Annual Announcement of the Medical Department of the University of Vermont and State Agricultural College for the year 1895.

Military Medicine, Surgery and Hygiene; Notes on the Introduction of Tent Field Hospitals in War. By Col. B. J. D. Irwin, M.D. Reprint. 1894.

Sperminum-Poehl in chemischer, physiologischer und therapeutischer Beziehung. Von Dr. G. Bubis. St. Petersburg: Buchdruckerei von Wienecke. 1894.

Higher Education in Iowa. By Leonard F. Parker, Professor of History in Iowa College. Washington, D. C.: Bureau of Education, Circular of Information, No. 6. 1893.

Transactions of the Medical Society of the State of Pennsylvania at its Forty-fourth Annual Session held at Philadelphia, 1894. Vol. XXV. Philadelphia: Published by the Society. 1894.

Higher Education in Tennessee. By Lucius Salisbury Mernam, Ph.D., Instructor in Political Economy in Cornell University. Washington, D. C.: Bureau of Education, Circular of Information, No. 5. 1893.

The Pre-Tubercular and Pre-Bacillary Stages of Consumption. A Consideration of the Early Diagnostic Signs of Pulmonary Tuberculosis; A Plea for the Recognition of Premonitory Symptoms. By Charles Manly, A.M., M.D. Reprint. 1894.

Local Anesthetics and Cocaine Analgesia, their Uses and Limitations. By Thomas H. Manley, A.M., M.D., Member of the New York Academy of Medicine; the New York Pathological Society, etc. St. Louis: J. H. Chambers & Co. 1894.

Essentials of Chemistry and Toxicology for the Use of Students in Medicine. By R. A. Witthaus, A.M., M.D., Professor of Chemistry and Physics in the University of New York, etc. Twelfth edition. New York: William Wood & Co. 1894.

Dissections Illustrated, A Graphic Handbook for Students of Human Anatomy. By C. Gordon Brodie, F.R.C.S. In four parts. Part III, The Head, Neck and Thorax, with twenty colored plates. New York and London: Whittaker & Co. 1894.

New York Letters on Orthopedic Surgery. The Scope of Orthopedic Surgery. Tubercular Abscesses and their Treatment. Old and Neglected Deformities following Infantile Spinal Paralysis. The Use of Traction in the Treatment of Joint Diseases. By Stewart Leroy McCurdy, A.M., M.D., Pittsburgh, Pa. Reprints. 1894.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A.M., M.D, Professor of Chemistry, Physics and Hygiene in the University of the City of New York, etc.: and Tracy C. Becker, A.B., LL.B., Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo. Volume II. New York: William Wood & Co. 1894.

# Lecture.

## TUMOR OF THE CEREBELLUM, WITH BULIMIA AND RECURRENT APOPLECTIFORM SEIZURES.[1]

BY J. T. ESKRIDGE, M.D., DENVER, COLO.,

*Professor of Nervous and Mental Diseases and Medical Jurisprudence in the Medical Department of the University of Colorado; Neurologist to the Arapahoe County and St. Luke's Hospitals.*

THE case of the patient who lies before us to-day in a stuporous and almost completely unconscious state presents many features of interest to which I wish to direct your attention. The history is as follows:

A. A., age twenty-six, male, married, born in Sweden, laborer by occupation, was admitted to the nervous wards of this hospital, in a stupid and confused condition, May 2, 1894. The stupor gradually deepened, and by noon the next day, the time of my first visit to the hospital after his admission, he was nearly comatose. His breathing was slow, and, as a rule, noiseless, but occasionally it was slightly stertorous with periods of intermission lasting ten or fifteen seconds. On the day of admission to the hospital, the temperature was 98°, pulse 100 and respiration 24. At the time of my first seeing him the temperature was 99° in each axilla, pulse 57, and respiration 16. He vomited on entering the hospital, and once during the next morning. The body showed evidences of considerable emaciation. There was slight stiffness of the posterior cervical muscles, with some retraction of the head. There was no apparent paralysis of any muscles. Whether there was any paresis, it was impossible to determine on account of the stupor. There was well-marked retraction of the abdomen. The knee-jerks were equal and decidedly increased. Ankle-clonus, plantar, cremaster and abdominal reflexes were absent. Reflexes of the extensor muscles of the forearms, biceps and triceps were slightly increased. Corneal reflexes, tested by touching the cornea with tip of finger: right, slight; left, scarcely perceptible. It was impossible to rouse him from the comatose condition by pricking his skin with the sharp points of an esthesiometer. Pricking the right leg caused slight movement of this leg, but irritating the left leg in the same manner gave rise to no response. Pressing firmly over the supra-orbital nerves produced no apparent effect. The pupils were reported by the resident physician to be small and equal in size on his admission to the hospital, but they had been widely dilated with atropine before I saw him. The ophthalmoscope revealed choked disk in each eye, and the nerves were best seen with + 5 D. The vessels over the optic disks were covered by exudate, and considerable hemorrhagic extravasation in the retinæ surrounding the disks was found. The veins were distended and tortuous; the arteries varied little from normal. Urine was normal in quantity, with a specific gravity of 1.015, and contained neither albumin nor sugar. One drachm of blue ointment was ordered to be rubbed in thrice daily.

May 5th, two days later, the patient had regained consciousness and was able to give the following account of himself: His family history, so far as he could remember, was negative. He had no illness during childhood. He denied syphilis, but admitted illicit intercourse and occasional indulgence in alcohol. His first illness was three years ago, when he suffered from some acute gastric disorder, attended by pain in the stomach and vomiting, lasting about three weeks. After this attack, he was well until July, 1893, when he began to suffer from nausea, vomiting and "sick-headache." Headache was not constant until five weeks ago, but it recurred from time to time, the pain, principally in the frontal and occipital regions, getting worse and more persistent. During the five weeks previous to his coming to the hospital, he had a constant distress in the head, with occasional attacks of vomiting. The vomiting did not seem to be connected with taking food, and often occurred when the stomach was empty. Two weeks ago, his headache became so distressing, attended by frequent vomiting, that he was compelled to quit work and take to his bed. He was further incapacitated for work on account of difficulty in walking and standing, and increasing weakness.

On examination, May 5, 1894, he was able to stand with eyes open for a short time when the feet were placed close together, but his body swayed to the left and backwards. His gait on walking forwards was like that of a drunken man. His body swayed; his step was uncertain; and his feet were kept wide apart, but he did not raise them unduly high, neither did he seem to exert too great muscular effort as is observed in certain forms of ataxia. Walking backwards, even with the eyes open, was very difficult, and was performed with body leaning forwards, while he pushed the feet backwards. On closing the eyes and trying to stand with feet close together, or to walk forwards, he fell towards the left and backwards. He was unable to take a single step backwards while the eyes were closed, and an attempt to do so caused the body to plunge in the same direction towards which it swayed when he was trying to stand with closed eyes. Knee-jerks: right absent, both direct and reinforced; left direct, slight; reinforced, a little more pronounced. Ankle-clonus, plantar, cremaster and abdominal reflexes absent. Reflexes of extensors of forearms about normal; triceps lessened; biceps decidedly increased. Dynamometer: right, 96; left, 110. The tongue was protruded in the median line. The face was expressionless. There was no apparent paresis or paralysis of any muscles. The pupils were still widely dilated with atropine. All general sensory phenomena were apparently normal, with the possible exception of tactile sense on the tips of fingers, where it seemed less acute than is commonly found, as shown by the difficulty that he experienced in distinguishing two points of the esthesiometer; but this was attributed to his impaired mental vigor, as he could readily recognize the slightest contact of a feather on any portion of the body, including the finger tips. Hearing for watch: right, one-third of the normal distance; left, on contact. Hearing for tuning-fork better in the right ear. Smell and taste present, and about equally acute on the two sides. In the right eye V = counts fingers at ten feet; fields all narrowed, most on the nasal side; ophthalmoscopic changes were the same as observed two days before. In the left eye V = counts fingers at twelve feet; fields and changes in fundus and disc about the same as observed in the right eye. There was a well-marked internal squint of the left eye, with occasional twitching of the left internal rectus muscle. He was unable to turn the right eye outwards to the normal degree, and the external rectus of the left eye was weaker than that of the right. He failed in the attempt to turn either eye downwards, and the effort caused overaction of the left internal rectus. He succeeded in turning the eyes upwards, but only a little beyond the horizontal axis, and the effort to carry the eyes further upwards caused marked convergence of both eyes. All the external ocular muscles, except the internal recti were weakened. It was impossible to determine the condition of the intra-ocular muscles on account of the pupils having been dilated with atropine. The resident physician stated that the pupils were very small when the patient was brought to the hospital, and he had dilated them to make it possible for me, on my arrival, to make an ophthalmoscopic examination of the fundi of the eyes.

His headache soon lessened, vomiting ceased, appetite became ravenous, and he gained flesh. Soon after beginning the treatment, nearly all the eye muscles improved in power, but there remained an internal squint of the left eye. The pupils became very small as soon as the influence of the atropine had subsided, and dilated but little when the eyes were shaded. On June 5th, without any apparent cause, the temperature descended to 96.8° F. It had been normal, or only varied half a degree up to this time. June 16th, he had a severe headache and vomited once or twice; head pain complained of in frontal region. He

[1] A clinical lecture delivered at the Arapahoe County Hospital, November 3, 1894.

again became unconscious, and was for a few hours in a deeply comatose condition. The face was deeply congested and much darker than usual; respiration was intermittent, and pulse slow and labored. On the 18th he had regained consciousness; and at 9.30 P. M. he had a severe general convulsion, and remained in a profound stupor until 2 A. M. of the 19th. On the 20th he was totally blind, and suffered severely from headache. Again he became comatose; and remained so for two or three days, presenting symptoms similar to the previous attacks. June 25th he was conscious, and was able to see nearly as well as he could on admission; but vision gradually decreased, and by July 19th he was totally blind, and has remained so since. July 22d he had a severe convulsion at 5 P. M., lasting about ten minutes. The spasm was tonic in character, face very dark, head turned to right and somewhat retracted, pupils very small. July 25th hearing failing rapidly; by the latter part of August, he could hear only loud sounds, and was so deaf it was impossible to make him understand anything.

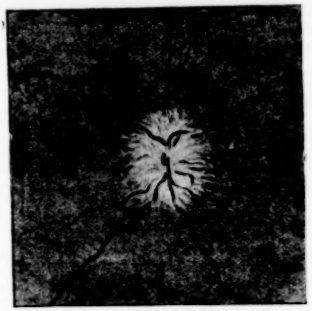
Bulimia, or excessive hunger, was a very prominent symptom from the early part of June to the middle of October. During this time it was the custom of the nurses to serve him with two or three times the quantity of food required for convalescents whose appetites could not be surpassed by laboring men in vigorous health. He would eat all that was given him, and complain to me at my visits that he was being starved. I have frequently seen the quantity of food served him, and observed him eat. He would consume, in a short space of time, ten or twelve large, thick slices of bread, with meat, butter and vegetables in proportion. He ate like a man half starved. Thirst has never been excessive. He gained greatly in weight notwithstanding occasional attacks of vomiting.

The mercurial inunctions on which he was placed soon after entering the hospital were continued alone for three or four weeks. He seemed to improve during the first two weeks, but after this improvement ceased. Early in June potassium iodide, in increasing doses, was given in addition to the inunctions. The mixed treatment was continued until he was getting 100 grains of potassium iodide thrice daily, but no benefit seemed to result. Then potassium iodide was given without mercury; but the result was negative, and he gradually lost ground. He has had no special medication during the last six weeks or more.

His morbid appetite began to lessen about two weeks ago. He still has attacks of vomiting, but does not complain of headache much. He has made no effort to stand for three months. He lies in a semi-comatose condition most of the time; and if he gets uncovered or one leg falls out of bed, he is indifferent and makes no effort to replace the covering or correct the position of his leg. Until two or three weeks ago, he notified the attendants when he desired the urinal or bed-pan, but since then, he has passed the contents of the bladder and bowels in bed without endeavoring to attract any attention. He had a severe convulsive seizure last night.

He is now deaf and blind. It is impossible to test the senses of smell and taste. Pricking a limb causes him to draw it up, and if the irritation is continued he will ask, "What is the matter, what do you want?" There is no paralysis of the muscles of the limbs. The functional integrity of the anal and visceral sphincters is preserved, and to the mental failure we must attribute his neglect of habits of cleanliness. The left side of the face seems paretic when he yawns, but the face is not drawn to the right when the muscles are at rest. The contour of the body is well preserved, and there is no emaciation or muscular wasting. The ophthalmoscope reveals the usual trophic changes that follow choked disk. There is well-marked convergence of the left eye, and moderate divergence of the right. The latter is observed to turn inwards at times on a line with the vertical axis, but the left never turns outward. The eyes are not observed to turn upwards or downwards. Whether he is able to move the eyes in these directions it is impossible to determine at this time. The pupils remain very small and do not dilate when shaded. There is no protrusion of the eye-balls.

The patient, whose history I have reported to you with results of examinations under two distinct circumstances, furnishes illustrations of difficulties in the problems of diagnosis. The first difficulty was encountered in trying to determine the nature of his trouble when I first saw him in a comatose state, and this, too, in the absence of any knowledge of his previous condition, or of the manner in which unconsciousness came on. The next was experienced in endeavoring to localize, with the additional aid of the meagre history and the consciousness of the patient, the lesion that I had diagnosticated during the state of coma.



Appearance of fundi, November 3, 1894.

### DIAGNOSIS DURING COMA.

If summoned to see a patient in a comatose condition, our first duty, after meeting any emergency that may seem obvious, is to make a diagnosis. Cardiac syncope; chloral, opium, alcohol and other poisons; uremia; epilepsy; hysteria; apoplectiform attacks occurring from cerebral congestion or from the cerebral state found in some cases of paretic dementia, "simple apoplexy" in the aged; embolism; thrombosis; hemorrhage; abscess; tumor; and inflammatory conditions of the brain, give rise to symptoms somewhat similar. If we are ignorant of the history of the patient and the mode of the development of the comatose state, we may in some cases find it difficult or impossible to arrive at a satisfactory conclusion.

I hope soon to be able to illustrate by cases many of the difficulties encountered in arriving at a satisfactory diagnosis in the apoplectic state. Fortunately, the patient before us presented one prominent symptom that enabled us at once to exclude most of the causes of coma above enumerated. This symptom was choked disk. It illustrates the value of an ophthalmoscopic examination in all cases of unconsciousness. Excluding organic brain lesions, there are three conditions that may give rise to choked disk. These are lead-poisoning, profound anemia and kidney disease. Headache, optic neuritis, convulsions and delirium followed by coma may be caused by lead-poisoning; but other obtrusive symptoms of saturnism, such as the blue line of the gums, the peculiar appearance of the patient, are present. Nothing that indicated lead-poisoning, not even convulsions nor delirium, was present in this case. The very high degree of swelling of the optic disks found in our patient, rarely, if ever, occurs from lead. When optic neuritis is due to anemia, the swelling is very much less than was found

in the patient whose case is under consideration, and the symptoms of anemia are pronounced. While the patient at the time of his admission to the hospital was emaciated, yet he did not present an anemic appearance. Kidney disease was excluded by the absence of albumin and tube casts in the urine.

The organic diseases of the brain — besides the acute inflammatory conditions, with considerable exudate or watery effusion — that may cause choked disks are tumor, abscess, and sometimes embolism. A normal or subnormal temperature would justify the exclusion of the acute inflammatory processes of the brain or its membranes, with a very few exceptions, the consideration of which is unnecessary for us at the present to discuss. The swelling of the optic disks following embolism is not as great as was found in this patient; and no source of an embolus, such as a cardiac murmur or a blood state, was found. Besides, embolism that has existed sufficiently long to produce choked disk would be attended with softening and probably with paralysis.

The diagnosis is narrowed down to abscess or tumor of the brain. Even with a reliable history, it is not always easy, and sometimes it is impossible, to make a positive diagnosis between tumor and chronic abscess of the brain. In about three-fourths of the cases of abscess, a source of the suppuration, such as chronic ear disease, infective states of the bones of the nose or skull, or suppuration in the lungs or elsewhere, will be found. In this case, tumor of the brain was diagnosticated on the presence of the enormous swelling found in the optic disks. It had attained a degree of intensity that is probably never reached in abscesses of the brain.

After the patient had regained consciousness and was able to give a fairly good history of his symptoms previous to his coming to the hospital, and after making a thorough examination under more favorable circumstances, nothing was found that leads me to change my diagnosis.

### LOCALIZATION.

Accepting the conclusion that this man is suffering from the presence of a tumor in his brain, let us proceed to analyze his symptoms with the view to localizing the growth. Exact localization of brain lesions is possible only when certain regions, whose functions are pretty definitely known, are involved. These include the cortical motor areas, the cuneus or the median surface of the occipital lobe, a portion of the temporo-sphenoidal lobe, more especially the left side, the internal capsule, crus, pons, medulla, and the regions at the base of the brain that contain certain cranial nerves. Lesions in the frontal, parietal and outer portion of the occipital lobes, or in the centrum ovale or cerebellum are sometimes very difficult to localize. We must bear in mind that a large tumor may have its seat in a portion of the brain, destruction of which gives rise to no obtrusive symptoms, and by the pressure and other effects of the growth, adjacent regions whose functions are known, may be seriously affected, causing symptoms of a definite character and leading the diagnostician to err in localizing the morbid process in the portion of the brain which has been indirectly affected by it. I have known tumors situated in the frontal and parietal lobes, and in the centrum ovale to cause hemiparesis without any extension of the growth to the motor region.

In the case of the patient before us we can exclude the temporo-sphenoidal lobe, the visual centre of the occipital lobe, and the motor regions of the cortex, because the functions of these portions of the brain have not been affected as they would be were any of them the seat of a tumor. From the fact that this man's deafness is bilateral and the motor cranial nerves are not paralyzed, we may exclude the base of the cerebrum from being the seat of the growth. A tumor in one of the frontal or parietal lobes, or in the centrum ovale, would not give rise to bilateral deafness, and a growth in each hemisphere is too rare to merit consideration in this case. The probabilities are that the tumor in this man is situated in the neighborhood of the corpora quadrigemina or in the cerebellum. Lesions involving the former are usually attended by headache, vomiting, optic neuritis and ataxia — symptoms very prominent in this patient. A tumor in the centrum ovale of one hemisphere, by indirect pressure upon the corpora quadrigemina may cause a staggering gait that is almost identical with the titubation caused by a growth in the cerebellum, but the symptoms would be much more prominent on one side than on the other. A few months ago a man, about forty years old, died in this hospital from a tumor of the brain. During life he presented many symptoms, especially the gait, optic neuritis, occasional headache, etc., of a cerebellar growth. There was no unilateral symptom, but simply inability to stand during a number of months preceding his death, because of muscular rigidity and loss of the power of co-ordination. There were no paralysis, but a weakening of all the muscles of the limbs. He was blind, but hearing was not affected. On his admission to the hospital the gait and the tendency to fall to the left and backwards made me suspect a growth in the cerebellum; but as the disease advanced and the nerves whose nuclei of origin are in the floor of the fourth ventricle did not become affected, I was lead to locate the lesion anterior to the pons. The autopsy revealed an enormous growth involving the posterior portion of the corpus callosum extending well into the centrum ovale of each hemisphere and exerting pressure directly on the corpora quadrigemina. The symptoms of a growth in these bodies would be bilateral in character, but for the tumor to extend sufficiently downwards to destroy the nuclei of origin of the auditory nerves, the nuclei of the third cranial nerves would be rendered functionless before such a result could in all probability take place. I think we are justified in locating the lesion in this case in the cerebellum, affecting its middle lobe or vermes, and probably extending a little further to the left side than to the right. I only suspect that the tumor has invaded the cerebellum a little more to the left of the median line than to the right, because the tendency has been, when he has been able to be on his feet to fall to the left and backwards, although numerous cases of tumor of the cerebellum are on record where the body has swayed from the side in which the growth was situated.

We will now consider the most prominent symptoms found in this patient's case, and see if they may be accounted for by a growth in the cerebellum. Headache, vomiting, optic neuritis, blindness, convulsions, unsteadiness of gait, and often deafness, are the usual symptoms of tumor of the cerebellum involving the middle lobe.

The recurrent attacks of coma attended with venous congestion of the face, slow pulse and respiration, may be accounted for by pressure on the lateral and occipital sinuses into which the veins of Galen empty. The latter receives the blood from the walls of the ventricles, the choroid plexuses and corpus callosum. Any sudden increase of pressure below the tentorium, as would likely result from a spreading tumor in the cerebellum, might give rise to attacks of coma, the circulation becoming re-established and consciousness returning as the parts adapt themselves to the changed conditions. Sometimes the congestion is so great that life can no longer be maintained, and sudden death may thus take place in growths of this portion of the brain.

The mental failure in this case, as occurs in many others of like nature, is also probably due to disturbed circulation.

The paresis of the left side of the face which has recently developed, slight difference in the knee-jerks of the two sides, with less acute sensory functions of the left side, may be explained by assuming that the tumor presses a little more on the left side of the pons than on the right.

How are we to explain the persistent small pupil in a man totally blind, the convergence of the left eye, slight divergence of the right and the limitation of the upward and downward movements of the eyes with a tendency to convergence of both eyes when he attempts to move the eyes upwards or downwards? Most of the nuclei which give origin to the nerve fibres that supply the muscles involved in these movements are situated beneath the floor of the aqueduct of Sylvius; and as we have seen that the veins from this portion of the brain are probably kept engorged from the interference with the circulation in these veins caused by pressure on the occipital and lateral sinuses, it is probable that these nuclei are in a constant state of irritation, "irritable weakness." In health, extreme convergence of the eyes is attended with contraction of the pupils. Each internal and external rectus of the eye is supplied by nerve fibres that are innervated by two separate and distinct nuclei, one acting when both internal recti contract and cause convergence of the eyes, the other when both eyes turn to the right or left. Or the mechanism may be explained by supposing one set of nuclei for each muscle, but so arranged that the internal recti may act in harmony with each other, or those of one internal rectus may act in conjunction with those of external rectus of the other eye. As the internal recti muscles are the most powerful muscles of the eye, convergence of the eyes would naturally be the result of ineffectual efforts to move the eyes upwards or downwards.

Bulimia may be caused by disease of the brain, stomach or some other organ. Increased thirst, with diabetes insipidus or mellitus, is more common in irritation of the floor of the fourth ventricle, than increased sensation of hunger, but as bulimia has been found in cases of diabetes mellitus, it is probable that there is a centre in the fourth ventricle, irritation of which gives rise to a morbid sensation of hunger. It must be remembered that this man has suffered from chronic gastric disorder attended with severe pain in the stomach. The autopsy may reveal adhesions of the stomach to adjacent structures in such a manner as to prevent the walls of the organ from collapsing when empty. Ord cites two such cases, in both of which bulimia was a well-marked symptom.[2]

The prognosis of this patient's condition is utterly hopeless. The anti-syphilitic medication, which was resorted to in his case, has failed to arrest the progress of the disease, and surgical interference in tumor of the cerebellum, so far, has afforded but little beyond an ante-mortem examination of this portion of the brain, except in a few cases, in which pain has been relieved, and in two or three others, where life has been prolonged, the patient remaining blind.

### SUBSEQUENT HISTORY.

The patient gradually became more stuporous; he had general convulsive movements on two or three occasions; irritable stomach, with vomiting of nearly everything taken into jt, became a well-marked feature of the case; and finally he passed into a deep comatose condition, with pronounced cyanosis of the face, and died December 1, 1894, about four weeks after the lecture was delivered on his case.

*Autopsy.* — The body was placed in a cool place immediately after death and the examination was made by Dr. McClannahan and myself a few hours later. The brain and the organs in the abdominal cavity were the only parts investigated.

The external surface of the dura presented a normal appearance, but over the region of the cerebellum this membrane was quite tense and bulged on removal of the bone. On removing the brain from the base of the skull the infundibulum was torn across, leaving the pituitary body *in situ*. The canal in the infundibulum was greatly dilated, and through it three or four ounces of a straw-colored, watery fluid escaped from the ventricles. After exposing and examining the entire external surface of the brain, and the medial surfaces of the hemispheres of the cerebrum, no lesions were found on these parts. The vessels and nerves presented a normal appearance. On opening into the lateral ventricles they were found enormously distended but empty, as the fluid which they had contained escaped by the third ventricle and the infundibulum. No other evidence of disease was found in any part of the cerebrum. On exposing the upper surface of the cerebellum by removing the occipital lobes a growth was found in the middle lobe, principally in the anterior portion. On the left side of this lobe the tumor extended back to nearly the centre, but on the right side it affected only the anterior portion. The three peduncles of the cerebellum were involved by the tumor on the left side, and the middle and superior ones on the right. The growth projected forward of the cerebellum and infiltrated the structures that form the upper and lateral boundaries of the aqueduct of Sylvius and involved to a slight extent the corpora quadrigemina. Pressure was exerted on the floor of the fourth ventricle and on the floor of the aqueduct of Sylvius and on the veins of these parts and the adjacent sinuses, thus accounting for the accumulation of the fluid which was found in the lateral ventricles.

The organs in the abdominal cavity presented no abnormal condition. The stomach was carefully examined, but no cause for the condition of bulimia was found.

The cerebellar growth, which was soft and measured one and one-half inches from before backward and one inch at its widest part, was given to Dr. E. R. Axtell, pathologist to the hospital, and his report is as follows:

"To the naked eye the tumor mass is soft, and looks somewhat like brain tissue. It is more or less rounded, and is fairly sharply defined from the surrounding tissue which accompanies it. In color it is a dull, reddish pink, with no glistening white capsule nor bands of fibrous tissue running through it. Here and there in the mass are a few small red and brown spots looking like hemorrhagic areas.

"Sections of the tumor, made in all diameters, show that the mass is composed in part of small, round cells not

[2] British Medical Journal, June, 1889.

arranged in any special manner; here and there in the mass, but generally toward the area of normal tissue, the cells becoming definitely spindle-shaped, of large size, showing the formation of new connective tissue. The mass is nowhere exceedingly vascular, but small vessels can be seen forming in the spindled-celled area, and even in the mass of round cells.

"In the area of small, round cells there are a few patches of extravasated blood, but there is none in the area of spindle cells. The vessels about the mass contained blood, but gave no evidence of an endarteritis obliterans. Sections stained for the bacillus of tubercle failed to show any bacilli under a Leitz one-twelfth. No section showed any felted mass of fibrils, as is seen in a glio-sarcoma. The spindle-cells infiltrated the adjoining tissue without any definite capsule being formed.

"Diagnosis: mixed sarcoma of the small round and large spindle-cell form."

## Original Articles.

### RAPE.[1]

BY FRANCIS W. ANTHONY, M.D., BRADFORD, MASS.,
*Surgeon to Haverhill City Hospital.*

I SHALL ask your attention this afternoon to the subject of Rape — a medico-legal subject of so many branches and far-reaching roots that I can only hope to introduce it to your notice, trusting that its consideration may be not without value, even to the general practitioner.

It is difficult in preparing a paper of this sort from notes collected for several months in the intervals of a busy professional life, to credit all the authorities consulted; and, in imitation of our Newburyport friend who put at the close of his book *all* the punctuation marks, that the printer might distribute them as he saw fit, I wish here to acknowledge my obligation to Taylor, Briard, Tidy, Tardieu, Brouardel, Casper, Chaudé, Sajous and Wood; to R. von Kraft-Ebing and Chaddock; to Tyng, Metcalf, Pickering, Gray, Allen, Lathrop, Brown and Keller, requesting them to insert the quotation marks, if, in writing, I have omitted to place them. I wish also to acknowledge courtesies from Dr. F. W. Draper, medical examiner for Suffolk County; Dr. J. F. Croston, medical examiner for Essex County; Dr. E. S. Wood, expert of the Harvard Medical School, who kindly sent me the advance sheets of an article to be published this year on seminal stains; to Francis H. Pearl of the law firm of Abbott & Pearl, for the use of his medical library under his advice, and to District Attorney W. H. Moody, for privileges granted me.

The common form of definition declares rape to be the having of unlawful carnal knowledge by a man of a woman forcibly and against her will. The statutory term differs slightly, "Did not consent," being there used. A Massachusetts judge has decided that the two expressions are identical in meaning. A definition founded on the statutory term would be — "Rape is the having of unlawful carnal knowledge by a man of a woman, forcibly, where she does not consent," thus covering the case where a man by force has connection with a woman, the latter being asleep or drunk, said connection being therefore without her consent, though possibly by no means against her will.

The Public Statutes declare (Chap. 202, Sect. 27) that "whoever ravishes and carnally knows a female of the age of ten years or more by force and against her will, or unlawfully and carnally knows and abuses a female child under the age of ten years, shall be punished by imprisonment in the State Prison for life, or for any term of years"; and in Sect. 28, "That whoever assaults a female with intent to commit rape, shall be punished by imprisonment in State Prison for life, or for any term of years, or by a fine not exceeding $1,000, and imprisonment in jail not exceeding three years. Laws of 1888, Chap. 135, say, in substance, that an armed housebreaker whose intent is rape, whether assault is actually made or not, shall be punished by imprisonment in State Prison for life, or for any term of years not less than ten. In 1888 the age of consent was raised to fourteen; in 1893 this was again raised to sixteen.

In our country rape is also an offence against the common law.

Going back to periods remote — in the laws of Adelstone mentioned by Bracton, the crime of rape was punished by loss of life. As years went on this was considered too severe a punishment, and castration was substituted; while in the time of Henry VIII, this was replaced by loss of the eyes, unless the woman offended was single and so pleased by the experience that she elected the offender her husband, and the latter consented to assume the relation. In the time of Edward I, the age of consent was twelve years; the penalty for rape, two years imprisonment or a fine. When Elizabeth held sway, a man violating a female child under ten years of age was declared a felon, and compelled to suffer without allowance of clergy.

To-day, to constitute a rape the man must have physical capacity — although lack of this does not debar an indictment for attempt to rape — the will, in the eye of the law, being taken for the deed. In England and in North Carolina a boy under fourteen is conclusively presumed to be incapable, whatever the real facts. In general, in this country this establishes only a *prima facie* case, which actual testimony to the contrary may overthrow. Old age, even extreme old age, does not imply incapacity. In fact we shall see later that, in many instances, the fact of old age suggests the truthfulness of a charge of rape. Suffice it to say, for the present, that a man of ninety-two has been known to be the father of a child by his wife aged seventeen.

Absence of testicles in the scrotum is not a sufficient plea to set up against a charge of rape; for it is known that these crypsorchides are not only potent, they may be prolific.

As puberty in the male is not essential, so, also, the same is true in the female in case of rape. The offence may be committed against an unchaste woman or even a common prostitute, but want of chastity may, within certain recognized limits, be shown as rendering it more probable that the woman consented. Still, as decided by Morton (Judge) in the case of the Commonwealth *vs.* Thomas Harris: "In a prosecution for rape evidence of *particular* instances of unchastity on the part of the woman with persons other than the defendant is inadmissible, while her character may be impeached by *general* evidence of her reputation." An interesting question might arise in this connection: Are seminal stains found on the clothing of the woman the result of this rape, or of old cohabitation?

A husband cannot be found guilty of rape though he

[1] A paper read before the Haverhill Medical Club.

force his newly wedded wife to the consummation of the act without her consent and against her will; but if a husband be present abetting another man who forces said husband's wife, he is held the same as the principal in the offence. It was decided in the so-called "Methuen case," Commonwealth *vs.* Peter Scannel, that an indictment for rape need not allege that the defendant was over fourteen. The same decision practically was given in the case of the Commonwealth *vs.* Patrick Fogerty and others, in which case was also emphasized the principle that the husband assisting in a rape is chargeable as a principal. The audacity of defending a rape fiend on the ground *not* that the abused party *was* his wife, but that the indictment did not state that she was *not* his wife, strikes me as something tremendous, and I can only admire the calm tone of the judicial finding that ends with "Defendant's exceptions over-ruled" without adding a warrant for his lawyer for contempt of the capacity of the judge's mind.

A woman with less intellect than is required to make a contract may consent to carnal connection which, by the way, has been legally defined thus: "Carnal knowledge is sexual bodily connection," (Commonwealth *vs.* Charles N. Squires, 1867, Gray, J.). So that this carnal connection will not be rape; but if so idiotic as to be absolutely incapable of consent or dissent, and the man does not suppose he has her consent — note the loophole thus afforded — the connection is rape. From this it follows that the medical testimony as to the mental capacity of the woman in the case may affect the result of the trial; but if mental capacity is not shown, and even if rape be not proven, the defendant is not sure to escape; for it was decided in 1841, Commonwealth *vs.* Simon Fischblatt, that in an indictment for assault with intent to ravish, if "not guilty" be decided regarding the rape, "guilty of assault" may still be held, if force be proved.

Later will be considered the evidences of force from the physician's outlook.

The degree of force necessary to make an assault of this nature a rape, is interesting to note. Formerly emission was to be proved; later, penetration; but one decision maintains that an attempt to rape becomes a rape if the generative organs touch, for the outrage is not a threatened pregnancy or even the loss of the hymen, but the violence done the feelings.

It has been held in New York, that resistance on the part of the woman must be up to the point of being overpowered by actual force, by loss of strength to resist, from the number of persons making resistance dangerous or absolutely useless, or from dread or fear of death; — better judicial opinions do not endorse this view, but maintain that resistance must be made in good faith and not in mere pretence. In the case of the Commonwealth *vs.* Michael McDonnell (Pitman, J.), it was decided that the act must have been without consent on the woman's part; the defendant must have used sufficient force to have accomplished his purpose; that the degree of resistance was frequently essential in determining whether the want of consent was real, but that there was no rule of law requiring a jury to be satisfied that the woman, according to their measure of her strength, used all the physical force in opposition of which she was capable. The degree of resistance having then a distinct value in evidence, the methods of measuring this by a physician will be again referred to.

It was decided (Commonwealth *vs.* Patrick Fogerty and others) that an indictment for rape implies *force*, that is, it alleges that the defendant did, violently and against her will, feloniously ravish and carnally know the woman.

If the woman after the alleged offence excuses or forgives the defendant, still he can be convicted. This was decided in the case, Commonwealth *vs.* Edward Slattery (Allen, J.), in which it was shown that the defendant invited a young lady to ride, drove through some woods, got her to alight and ravished her; that then she re-entered the carriage, conversed on the way home, permitted him to assist her from the carriage; that on the way home she made no complaint, but did request marriage, and when this was refused, stated that if this refusal was persisted in she would "tell his folks." Despite the fact that to a degree she condoned the offence, it was held he could be convicted.

No rape can be maintained if consent is given before penetration or at least contact; but it must be borne in mind that consent given through fear is not consent.

The question has arisen how far ether and chloroform could be used and have the power of resistance overcome, the former drug having been used in a case in Pennsylvania, the latter in Ohio. It has been held that "If the woman had the capacity to hear, feel and remember, and a capacity to speak and forcibly resist, but the inclination to do so was lost, the will overcome by the action of the anesthetic either operating on the will faculty, the judgment and reflective faculties, or sexual emotions so that the mind was thereby incapable of fairly comprehending the nature and consequences of sexual intercourse, and the defendant, knowing these facts, had unlawful carnal knowledge of her forcibly, that would be a rape; and it would in such a case be wholly immaterial whether the entire mind was disordered and overthrown, or only such faculties thereof as are thereby rendered incapable of having just conceptions, and drawing therefrom correct conclusions in relation to the alleged rape."

The practical question may then arise to us as physicians, when, in the course of advancing anesthesia, is reached the point thus indicated? As we all know, the allegations of rape in dentists' offices are usually due to false ideas aroused by the anesthetic, but cases are on record where the dentist has been convicted.

Since hypnotism became better known and more practised, the question has been raised, Can a woman be ravished without her knowledge during hypnotic sleep? Brouardel says, "Only under favoring conditions." "If a man who is agreeable to the somnambulist offers suggestions to her which are acceptable or of an indifferent character and not offensive, she submits herself to them; but if the suggestions are revolting to her personal affections or her natural instincts, she opposes to them a resistance which is almost insuperable." Others think that a woman can be ravished during hypnotic sleep without the above-mentioned conditions. The question may be said to be an open one. French medical experts, as a rule, maintain that rape during hypnotic sleep is possible; but Taylor says that they forget "Non omnes dormiunt quae clausos habent oculos."

There is dispute also whether, barring cases where unconsciousness exists from fear, natural infirmity, the use of narcotics, liquors, anesthetics or hypnotism, rape could be accomplished. Taylor says that, barring the

above conditions and setting aside infants, idiots, lunatics, weak, delicate or aged women, it does not appear probable that intercourse could be accomplished against the consent of a healthy adult.

The exceptions are so numerous and broad that the statement seems to have an equivalent in this one — a man attempting rape *might* find himself overmatched in strength.

That a woman can be raped in natural sleep seems almost incredible. Casper relates the case of a married woman who alleged that while asleep she had been raped. In her deposition she admitted that she was conscious that some one was lying upon her, and that she asked who it was, showing that she had some doubts whether her husband was the party addressed. It would seem as though, except possibly in the case of substitution for a bridegroom during the early days of the honeymoon, something unfamiliar in physique or gesture might be detected by a woman awakened from a sleep; that she should sleep through such an experience seems incredible. [Since writing the above, credible evidence has been presented to me that in a woman not a virgin rape might be possible during sleep.]

During syncope rape could undoubtedly be committed without the knowledge of the victim.

The frequency of rape or attempts at rape may surprise some of you. Statistics show that in France in 1851 the rapes or attempts to rape upon adults, were 242; upon children, 615; total, 857. In 1861, upon adults, 217; children, 695; total, 912. In 1875, upon adults, 140; children, 813; total, 953. From 1851 to 1875 inclusive, the year furnishing the largest number of assaults of this nature was 1866, when the figures read, upon adults, 160; upon children, 883; total, 1,043. The whole number of such cases on record in the period mentioned, 1851 to 1875, inclusive, is, upon adults, 4,360; upon children, 17,657; grand total, 22,017.

The time of year seems well fixed when these assaults are most numerous; for example, in a series of about 800 cases covering a period of three years, statistics show that in the quarter including May, June and July, 293 cases occurred; August, September and October, 205; February, March, April, 171; November, December, January, 139. Another series from 1858 to 1869 gives a similar result; a closer examination discloses that *May* is the month in which rapes are most frequent, and that this is true, not only in France, but the world over as far as can be ascertained.

As regards the age of the victim: in 632 French cases, Tardieu states that 9 were over twenty; between fifteen and twenty, 84; between thirteen and fifteen, 90; under thirteen, 435; age not stated, 14. Old age is, however, by no means exempt. The youngest case reported is one reported by Dr. Brady, and cited by Taylor, the victim being nine months; one is upon record upon a child of eighteen months, and another of two years.

In case of an alleged rape it may become the duty of the attending physician to note certain facts coming fully as much in the line of the work of the police, who may be untrained observers. It is safe to say that here, as in a case of murder, nothing is of too little value to note, preferably in writing. The time called and time of arrival should be noticed, and, for obvious reasons, an early opportunity taken to compare your watch with standard time. Your examination of the garments of the victim, particularly of the shirt, underpetticoat and drawers should be thorough; if an opportunity is afforded, examine also the shirt and drawers of the male charged with the offence. Note the location and size of all stains, their odor, and degree of apparent freshness; all tears of garments, location and extent. If a bed figures in the alleged assault, examine its coverings or draperies, and note, not only stains as above, but tears or disarrangement; these, with the location of stains, may show the degree of resistance. On male attire the stains will of course be looked for more in front; on female attire either on front or back, sometimes on both. The importance of thorough examination was impressed upon me by District Attorney Moody, who reminded me of a case in New York or its immediate vicinity where a man was connected with an assault followed by murder, by the microscopic examination of the dirt under his finger-nails which disclosed vaginal epithelium.

The story of the victim is, of course, to be heard — simply as a story. She may be after blackmail; she may be self-deceived, insane or coached by others. If a child, the story of the mother or immediate relatives may be heard with the same caution. Mothers have been deceived by an innocent discharge, scrofulous, or due to oxyuris vermicularis, or masturbation. On the other hand, we must remember a child having such a discharge may be raped.

"Bearing in mind that medical evidence is seldom more than corroborative, but as important in false charges as true ones," says Taylor, "we examine the alleged victim for marks of violence about the genitals, stains of spermatic fluid which may be on the hair of the genitalia, stains on clothing as referred to above. If the case is alleged to be fresh, obtaining specimens of the vaginal mucus for further examination as to the presence of spermatozoa; if the case be of older date, collecting the same for examination in regard to the presence of the gonococcus. Laber was successful in colonizing and recognizing gonococci in pus stains found on the shirt of a man charged with rape, and on the chemise of his victim. Examine also for evidence of syphilis, remembering that both gonorrhea and syphilis may be innocently acquired.

On a child we might find evidences of inflammation due to violence, a muco-purulent discharge. If the assault was recent, blood or clots, a lacerated hymen, dilatation of the vagina, laceration of the vagina and adjacent parts.

In the case of an unmarried virginal adult evidence of inflammation from violence, muco-purulent discharge, destroyed or lacerated hymen, dilated vagina, and, if the attack was recent, bleeding-points with perhaps clots. In case penetration is alleged and the victim has not passed her urine since the assault, the first urine should be saved for microscopic examination.

This last precaution applies, of course, with still more force to married women, or unmarried women who have had previously sexual intercourse, where the only medical evidence of importance may be that of the microscope.

Any evidence of violence on other parts of the body, notably the throat, should be observed.

If an examination is made of the man charged with the offence, note any marks of violence, particularly scratch marks.

*(To be continued.)*

## SOME CASES OF SCARLET FEVER, WITH ESPECIAL REFERENCE TO CONTAGION AND PROPHYLAXIS.[1]

BY WILLIAM C. HOLYOKE, M.D., BOSTON.

SCARLET fever, in recent years, seems to be of a milder type than it was when I began practice, more than twenty years ago. Its death-rate in this State is very much less now than it was then. Such variations in type have long been observed, and it is not impossible that severe forms of the disease may again visit us, although it is to be hoped that the continued good work of the health authorities will prevent any very destructive epidemic in the future. Still, this malady, in some form, is always with us; and in large cities it would seem almost impossible to eradicate it, fostered as it is by crowding, filth, ignorance and selfishness.

Besides the oversight of the health officers, the most hopeful means of limiting such diseases should be the influence exerted by the attending physicians. It is not sufficient that the individual patient be successfully treated, but the health of the community should always be considered, and the parents or others in charge of such cases should be taught how these diseases usually spread, and the best attainable means of prevention.

So far as we know, the virus of scarlet fever is, in most instances, taken into the system with the inspired air; but a number of cases have been reported from drinking infected milk, and we may assume that it is possible for it to gain entrance through any absorbing surface with which it can come in contact.

We are more practically concerned, however, with the origin and mode of dissimination of the virus, in order that we may deal with it at its source. It may be assumed that it is given off from all the surfaces of the body of the scarlet fever patient. The most productive source is the disquamating cuticle; and when this is thrown off in the dry state, and the fine particles are floating in the air, it is in a condition most favorable for reception into the system. In the moist state, as given off from the internal surfaces, it may not be such an immediate cause of danger; but we must believe that forcible expiration can dislodge contagious particles from the air-passages, which, either in the form of spray, or dried and pulverized sputum, may be virulent even at an early stage of the sickness. It is possible that the urine and feces, if not disinfected, may contaminate the sewage and become a remote cause of trouble.

The most important means of preventing the spread of scarlet fever is isolation of the patient and the avoidance of all means by which the germs may be conveyed away until after they are disinfected. It is believed that the virus is not carried far by the air alone, although apparent exceptions to this rule have been noted. It is usually conveyed by persons or materials that have been in the vicinity of, or in actual contact with the patient.

It is probable that scarlet fever, in most cases, is not very contagious during the first day or two; and if patients are separated as soon as the rash appears, those previously exposed will commonly escape. After this, however, it is certainly contagious as long as desquamation is going on; and although this may, in some cases, cease in three or four weeks, it usually continues longer, and sometimes more than ten weeks. As a routine practice I advise isolation for six weeks from the beginning of the sickness, but sometimes find this period too short.

Our greatest difficulty is to secure proper isolation, especially amongst the poorer classes. During the height of the illness children are easily restrained, but when convalescence begins, and they beg for liberty, it is difficult to impress upon parents the duty of restraint in the interest of public health. Another source of danger is the use, during convalescence, of books and toys which are not afterwards destroyed, and which cannot be completely disinfected. There is evidently much carelessness in this particular.

I will now report a group of cases which may serve to illustrate some of the points just noticed. In the early part of the present year a number of cases of scarlet fever occurred in the home of the Boston Children's Friend Society, on Rutland Street. The home contained at that time about seventy children, of whom, as nearly as could be determined, fifty-five had never previously had the disease. The first case appeared on January 17, 1894; others followed, at first in rapid succession, then at intervals for more than three weeks, when, on February 10th there were twenty-two sick. After this there was a period of quiet for about six weeks when two others appeared, on March 27th and 31st; and finally another one on May 1st, making a total of twenty-five cases.

For a little while we were in doubt as to the origin of the trouble, but in a few days reached the only conclusion which seemed to give a reasonable explanation.

At Christmas some persons connected with one of the Sunday-schools in Newton Centre collected from their scholars a quantity of second-hand toys and picture books, which were presented to our home. According to the reports in the daily papers, scarlet fever was then prevalent in that town, so that it became necessary to close some of the schools. From recent inquiry it is learned that the increase of scarlet fever in the town of Newton, including Newton Centre, began in November, when more cases were reported than during any other of the five months of its prevalence. The toys and books, which filled a barrel, reached the home on Rutland Street, on January 2d, and were distributed to the children about eight or ten days later; and within another week the sickness began.

I have not attempted to trace the previous ownership of the toys. There would be manifest difficulty in doing so. But the facts that they were contributed by many persons in an infected district, and that a few days after their reception by the children the malady appeared, make a strong probability that some of them were infected with the germs of scarlet fever. As soon as the toys and books were suspected they were collected and destroyed.

As cases of the disease continued to appear long after the destruction of the toys, we naturally inquire whether the later cases resulted from the original cause, or from contact with the sick. In support of the first of these views we must remember that the toys and books had been in possession of the children about ten days. They had been widely scattered, and probably sufficiently handled to disengage many of the germs. It was impossible to fumigate the whole house, and it was not attempted except by burning sulphur in the playroom, where the toys were first distributed. Therefore, it was necessary to wait for the slow process of ventilation to remove the virus, which the cold weather rendered more difficult.

[1] Read before the Boston Society for Medical Observation, October 8, 1894.

As soon as the children were taken sick they were at once separated, and their bedding and clothing removed and disinfected. The rooms occupied by the sick and their attendants were in a remote part of the building, well situated to insure isolation; and, as far as possible, all communication was cut off from the rest of the house. The management was so careful and the separation so complete that I consider it impossible that any should have become infected from this source.

We may now inquire whether it is probable that the disease continued to spread from contact with those recently affected, before they were removed. In order to throw what light I can on this matter it will be necessary to examine the cases more in detail.

The children were divided into two classes, the so-called school-children, over five years of age; and the nursery children, ten in number, all under five years; I may say that the school was within the building.

The disease began with two children on January 17th, three on the 19th and three on the 20th. These eight cases occurred in the older or school children, and all were undoubtedly produced by the original cause. Then, at intervals, in the course of the next three weeks, eight more of the older children were taken sick. How these were infected may be a doubtful question. Some of them might have resulted from contact with incipient cases of the sickness, but I am inclined to believe that the original cause was still acting.

All the remaining cases happened in the nursery. The nursery children had received none of the suspected toys; and after the disease entered the home, they were kept closely in their room, and not allowed communication with the other children. But there was one exception to this. On January 24th one of these small children was allowed to leave the nursery for a few hours and mingle with the older ones in the school-room. Four days later he was taken sick. Eight days afterwards another one came down; and I may mention that this child was troubled with a cough. From three to five days after this four others became ill, and then there was a long period of rest.

Of the cases just mentioned, we need not discuss the first, in which there had been communication with the school-children. The second, occurring eight days later, is of doubtful origin; but there can be little question that the next four, following the second at intervals of three to five days, were infected by it. This seems more reasonable from considering the fact that the second child had a cough sufficient to dislodge contagious particles from the throat.

Three more cases remain to be noticed. Two of these appeared late in March, and had been joined about a week before by several convalescent children, one of whom was found to be desquamating, although seven weeks had elapsed since she was taken sick. The remaining case appeared on May 1st, and the only explanation I can give is the following: One of those who had been affected was a girl twelve years old, whose sickness was severe and followed by prolonged desquamation. This was evident for ten weeks, but at the end of seventy-four days she was given an antiseptic bath and set at liberty. Her hair was long and thick. On the day she left the sick-room she went into the nursery, where only two children remained who had not had the disease. She also combed her hair with the comb used by those children. The visit was repeated a day or two later, and six days after her first visit one of the nursery children became sick.

Of the group of cases here reported the greater number may be regarded as due to circumstances largely beyond our control, but the last three could have been prevented by exercising more caution, although it may be said that the children who carried the infection were examined before leaving the sick-room by a prudent and experienced person. These cases, however, emphasize the need of careful supervision of convalescents, and tend to confirm the belief that many instances of scarlet fever result from neglect of this precaution, or inability to carry it out.

In the way of prophylactic treatment many internal remedies have been recommended, both to the well, to prevent the development of the disease, and to the sick, to prevent its spread. The most of these are such as have an antiseptic effect; and although we may be doubtful of their prophylactic influence on the general system, there can be little question that some of them have a very favorable effect on the mouth and fauces of the scarlet fever patient, and probably render the secretions of those parts less virulent. Of those that may be classed as mildly antiseptic I still use, in most cases, the old mixture containing chlorate of potash and tincture of chloride of iron, in small and frequent doses.

Since the most fruitful source of the germs is the desquamating cuticle, it is evident that the proper management of the skin is the most important part of the prophylactic treatment.

About twenty-five years ago Dr. Budd, of Bristol, England, reported excellent results from the application of olive oil, as an aid to isolation. He usually combined a little camphor with the oil, and the application was made freely and often, and continued until the patient was "well enough to take a warm bath." Then he was well scrubbed with antiseptic soap and water every other day until four baths had been taken, when the disinfection of the skin was regarded as complete.

Since that time most of the writers whose works I have examined mention the use of oil or ointments, either plain or containing antiseptics, but not all of them insist upon this measure as a matter of much importance; and as far as my observation extends, I do not think this method of treatment is used as commonly as its merits deserve.

Since the beginning of my practice I have always used olive oil as a remedial agent during the height of the sickness; but for some years past I have ordered it very freely throughout the whole period of illness and until disquamation has ceased, for the purpose of preventing the escape of the scales bearing the germs. There may be some advantage from combining antiseptics with it, or from using thicker ointment on the hands and feet when the patient is up; but I have been so well satisfied with the use of the plain olive oil that I still continue it, and its simplicty and ease of application are qualities that also recommend it. Much depends on its thorough and long-continued use; and as many of our patients are seen only a few times, it is necessary before ceasing attendance to give explicit directions for the future management of the case. The treatment can be best carried out if the patient remain in bed for a prolonged period; but whether in bed or up, much care must be used when

the clothing is removed. Nothing should be scattered about the floor, but all materials carefully gathered in a sheet and placed at once in the receptacle for disinfection. After getting up the hands should be well cleansed and constantly anointed, and I have known some mothers to keep the patient's hands wrapped in cotton cloths to prevent the scales from escaping.

Since adopting the measures here mentioned, my impression is that the disease is much less contagious than before. I have kept no records of cases; but those of recent date can be recalled, and I remember none in private practice, within the last year when it spread to any other person after my first visit, even when isolation was impossible. Such results may be, in part, accidental, but I will mention some of the cases to show the extent of exposure.

CASE I. Family containing five children between the ages of one and eleven years, none of whom were protected by previous attack. Two of these were taken sick at the same time, and at my first visit the rash was just appearing. In one the sickness was moderately severe, in the other very mild. It was impossible to keep the other children out of the sick-room; and the mother took care of them all. Three other susceptible children in the same house were occasional visitors, but none become affected.

CASE II. Family containing five children, who had never had the disease. Ages two to twelve years. One of these, age six years, had a moderately severe attack. Rash quite abundant. Patches on tonsils. He was kept in a separate room, but the other children were on the same floor, and the mother took care of all. No other case occurred in the family.

CASE III. Family of three children, who had never previously had the sickness. Ages six to ten years. The youngest had a severe attack with abundant rash. One of the others slept much of the time in the sick-room; and they were all taken care of by the same person. The two older ones remained well.

CASE IV. Family containing four young persons, who had never had the disease. The youngest, age eight years, became affected. Rash well-marked. Isolation was impossible. The others were frequently in the sick-room; and a woman living in the same house, mother of two small children, often visited the sick boy. No other case of the sickness occurred.

Other recent cases with a like result could be reported; but I have selected those in which there was the greatest exposure of susceptible persons.

It may be said that scarlet fever, at the present time, is of a mild type and not very contagious; but the group of cases first mentioned tends to show that under certain conditions the disease may be taken now as readily as ever.

## REMARKS ON STAPEDECTOMY.[1]

BY FREDERICK L. JACK, M.D., BOSTON, MASS.

THE interest in operations for the relief of deafness, vertigo and tinnitus has naturally centered during the last two years, upon mobilization or removal of the stapes. Until within a comparatively recent time the drum was attacked, then the various tendons, and finally the two larger ossicles themselves were removed for the purpose of relieving the distressing symptoms often attending diseases of the middle ear. As time has gone on the pathology of the different portions of the ear has become better known, and it has become evident that the solution to the problem in many instances is at the further end of the chain, and efforts have been made in that direction. From our present knowledge it seems plausible to attribute the improvement in any individual case of removal of the membrana tympani, malleus or incus, in part or whole, chiefly to liberating or mobilizing the stapes.

In the last two years I have tried to remove this bone in sixty cases. As every rule has its exception, it seems that in my first series of sixteen cases reported in 1892, I hit upon many exceptions, and for the last year have been laboring with the rule.

It is very important before advising any operative interference to recognize as far as possible the changes in the sound-perceiving as well as in the sound-transmitting apparatus, for, as we know, changes in one part are apt to follow those in the other.

We know that with a perfectly open foramen ovalis and a normal sound-perceiving apparatus one is able to hear ordinary conversation with little or no difficulty. Much has been done to demonstrate the practicability of removing the stapes to free this foramen. The conditions which so frequently destroy the expected results are degeneration of the auditory nerve, bony fixation of the foot-plate, or along any part of the crura or head of the bone; rupture of the basal membrane with hemorrhage into the labyrinth at the time of extraction is an accident to be thought of. I have found in those cases operated upon early, by which I mean before a high degree of deafness has occurred, that there is much less resistance to removal of the stapes and that there is a better condition of the internal ear. The following case of double extraction, previously reported, is evidence of this. The case is also of value because of the long time which has elapsed since the operations.

CASE I. F. D., twenty years old. Progressive deafness in both middle ears from chronic non-suppurative inflammation of several years duration. Hearing in the right ear before operation was as follows: Hearing = R., H $\frac{c}{6}$; whispering voice = $\frac{s}{25}$; moderate voice = $\frac{1}{30}$.

Operation on September 27, 1892. Tests of hearing one year and eight months afterwards as follows: Hearing = R., H $\frac{1}{10}$; whispering voice = $\frac{1}{5}$; moderate voice = $\frac{1}{3}$; tuning fork, C. = a. c., 27″, B. C., 36″.

The hearing in the left ear before operation was as follows: Hearing = L., H $\frac{2}{6}$; whispering voice = $\frac{1}{5}$; moderate voice = $\frac{1}{3}$; tuning fork, C. = a. c., 15″.

The hearing power as recently tested, two years after stapedectomy, was as follows: Hearing = L., H $\frac{1}{10}$; whispering voice = $\frac{1}{3}$; moderate voice = $\frac{1}{3}$; tuning fork, C. = a. c., 25″, B. C., 28″.

The relief afforded in this case for so long a time argues well for the future.

My results in so-called cases of sclerosis have been extremely discouraging, as appeared in last year's report. For in nearly every instance the bone has been found so firmly anchylosed, usually in the neighborhood of the foot-plate, that upon pressure a fracture of the crura has occurred, leaving the foot-plate firmly adherent. In fact, as most of us have seen in one of Professor Politzer's beautiful specimens, the vestibule itself may contain osseous growths.

In the hypertrophic form of inflammation as well as in the suppurative ears which have healed, we find as

[1] Read before the Boston Society for Medical Observation, October 8, 1894.

a rule that adhesions are fibrous and not bony. Here we have a condition better adapted for mobilization or removal of the bone. But in this class of cases again, unfortunately, we have changes in the internal ear which seem to go hand in hand sooner or later with many changes around the foot-plate. As it is impossible in any case to determine beforehand the amount of relief, it seems best from the present experience, as I suggested two years ago, to make an opening in the drum membrane in order to note pathological changes as a guide to surgical interference. By means of this exploratory opening access is furnished for a syncheotomy, tenotomy, disarticulation of the incudo-stapedial joint, or removal of the incus itself, and mobilization of the stapes by means of a probe. Many of these operations can be done more successfully under cocaine with the aid which the patient is able to give, but stapedectomy should always be done under ether. If any of these measures give relief the removal of the stapes may not be necessary. In cases of chronic aural vertigo the removal of the pressure on the stapes has been found in many instances to relieve the dizziness. Let me briefly report one case which has stood the test of time.

CASE II. M. R., twenty-four years of age. There had been a chronic progressive disease in the right middle ear for two years. For the last year had been troubled a great deal with attacks of dizziness. The drum membrane was opaque, indrawn and the malleus retracted.

The hearing for the watch was: Hearing = R., H $\frac{15}{180}$; whispering voice = $\frac{1}{25}$; tuning fork, C. = a. c., 10″, B. C., 12″. Konig's rods, 25,000.

The operation was done under ether; triangular incision. The incudo-stapedial joint could not be seen; but by means of a curved knife the articulation was separated and the tendon of the stapedius divided. With a blunt hook the long process of the incus was brought down as far away from the head of the stapes as possible. It is now over one year and a half since the operation and there has been no return of the vertigo. There was practically no change in the hearing. In order to relieve the pressure in this case, disarticulation of the incudo-stapedial joint was all that was necessary. The stapes can be removed at a later operation if necessary.

In considering the results of a personal experience for the last two years, I can say —

(1) That the best results in hearing have been obtained in cases of early removal of the bone, and that this operation is of little use in cases of otitis media insidiosa (sclerosis).

(2) That cases of chronic aural vertigo have been permanently relieved by liberation of the stapes or by extraction of the bone itself.

(3) That in cases of non-suppurative disease of the middle ear, as well as the class of cases the result of a chronic suppurative process, surgical mobilization should first be tried before an attempt is made to remove the stapes.

(4) That most operations for mobilizing the stapes or freeing the oval window must be looked upon as largely experimental, and that in many cases a fracture of the crura occurs at the time of attempted extraction, leaving the base plate.

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The *Southern Medical Review*, Houston, Texas, has published one issue, counted the cost, and is no more.

## Clinical Department.

### A CASE OF CONCEALED UTERINE HEMORRHAGE.

BY ALBERT H. TUTTLE, M.D., CAMBRIDGE, MASS.

I WAS called in consultation by Dr. Slayter, September 20th, to see a young woman, Mrs. M., a fourpara of about thirty years of age, who had been suffering from a sero-sanguinolent discharge from the vagina, of uterine origin, for over a week, and whose pallor and loss of strength indicated something unusual had taken place. Menstruation occurred last on the 25th of May, and was followed by the usual symptoms of pregnancy.

At the time of examination, about four months from the date of last menstruation, the uterus was symmetrically enlarged and at a level with the umbilicus; with a firmness that indicated a nearly solid body, and of a boggy consistency, resembling that of a mole structure. It was freely movable, not tender to the touch, and transmitted no sounds that could be recognized, either placental or fetal. There was no history of uterine pains of a labor-like character, or any symptom of the onset of labor. Vaginal examination showed a badly-lacerated, swollen cervix, with tight cicatricial constriction of the canal, the latter obviously having much to do with the patient's condition. Ballotement was negative. From the absence of signs of life and the peculiarly solid character of the uterus, the conclusion that the fetus was dead was easily reached, and advice was given to clean out the contents of the womb.

The following day, with the assistance of Drs. Slayter and Lockhart, the patient was etherized, the cervix drawn down with forceps, the canal dilated with Wathens's instrument and the fingers, and the contents of the uterus evacuated; nearly a quart of dark tarry-looking blood, with a four months' fetus, somewhat macerated, and the placenta were removed.

The dilatation of the cervix was effected with considerable difficulty, the former tear being slightly increased by the operation, and was not carried sufficiently to admit of the delivery, *in toto*, of the aftercoming head. The head was crushed by a finger passed above it, in the uterus, and extracted by the aid of a strong pair of tenaculum forceps, inserted in the firmer structures of the skull, and gentle traction on the body of the fetus. Relaxation of the uterus followed the third stage of delivery, and was met by the intra-uterine injection of tincture of iodine. An uninterrupted recovery followed.

## Medical Progress.

### RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D.

#### SURGERY OF THE URETER.

FENGER,[1] at the end of a very valuable and interesting article on this subject, presents the following conclusions:

Catheterization of the ureters from the bladder for purposes of diagnosis of diseases of the kidneys has

[1] Annals of Surgery, September, 1894.

given valuable information affecting the decision for or against operation on the kidney. The procedure is reasonably practicable in the female.

In man, catheterization is practicable only through epicystotomy. The danger of this operation is steadily decreasing. Therefore this procedure is justifiable in selected cases.

Catheterization of the ureter from the bladder as a curative measure for the evacuation of hydro- or pyonephrosis has occasionally been performed successfully (Pawlik). It is more difficult and more uncertain than nephrotomy, and the attempt to find and remedy the stenosis of the ureter from the pelvis of the kidney.

Dilatation of strictures of the female ureter by elastic bougies or catheters has been tried from the bladder by Kelly with temporary success, and from the pelvis of the kidney by Alsberg successfully. Consequently this procedure is of use in isolated cases.

Permanent catheterization of the ureter from the bladder, a fistula, or an implanted ureter is often tolerated only for a limited time, and must be employed with caution for fear of causing ureteritis.

Uretero-lithotomy, longitudinal incision over a stone for its removal, is a safe operation by the extra peritoneal method. The wound heals without stenosis. In extraperitoneal operations suturing is unnecessary. Drainage down to the wound is sufficient.

Intraperitoneal ureterotomy should be done only when access outside of the peritoneal cavity is impossible, and should be completed by careful suturing, covering with a peritoneal or omental flap and drainage.

Opening of the peritoneal cavity to locate the seat of the stone may occasionally be necessary, but when the diagnosis is once made, ureterotomy for the removal of the stone should be done through an extraperitoneal incision, and the abdomen closed.

In valve-formation or stricture of the ureter, causing pyo- or hydro-nephrosis, or a permanent renal fistula, nephrotomy should be followed by exploration of the ureter in its entire course from the kidney to the bladder.

Exploration of the ureter as to its permeability should be done from the renal wound by a long, flexible silver probe — a uterine probe — or an elastic bougie, either olive-pointed or not. If the bougie passes into the bladder, the examination is at an end. The size of bougie that will pass through a healthy ureter is from 9 to 12, French scale.

If the pelvic orifice of the ureter cannot be found from the renal wound, it should be sought for by opening the pelvis, pyelotomy, or by incising the ureter, ureterotomy.

A longitudinal incision, half an inch to an inch long, in the posterior wall of the pelvis, can be made while the kidney is lifted upon and against the twelfth rib. This procedure is easy if the pelvis is dilated, but may be impossible if the pelvis is of normal size.

Operation for valve-formation should be done through the wound in the pelvis. If the opening cannot be seen or found from the pelvis, ureterotomy should be performed immediately below the pelvis, a small incision should be made in the ureter, and a probe passed up into the pelvis. The valve should be split longitudinally, and the incised borders so treated as to prevent re-formation of the valve.

A stricture in the ureter, if not too extensive, can be treated by a plastic operation on the plan of the Heinecke-Mikulicz operation for stenosis of the pylorus, namely, longitudinal division of the stricture and transverse union of the longitudinal wound. This method of operating for ureteral stricture seems to me preferable to resection of the strictured part of the ureter (Küster's operation) for the following reason: It is a more economical operation and preferable when the elongation of the ureter is not sufficient to permit the two cut ends of the ureter, after excision of the stricture not only to come in contact, but even to permit of closure by invagination without stretching.

Resection of the upper end of the ureter, and implantation of the distal end into the pelvis may be useful in rupture or division or stricture of the upper end of the ureter, as described by Küster.

In a similar case of stricture in the upper end of the ureter, especially if the ureter were not elongated or the kidney movable, I should prefer the plastic operation proposed by me, as it is easier of technique, and as it proved successful in my case of traumatic stricture in the ureter below the pelvic orifice.

The ureter is accessible through an extraperitoneal incision, a continuation of the oblique incision for lumbar nephrotomy, from the twelfth rib down along and one inch anterior to the ilium and along Poupart's ligament to about its middle. This incision gives access to the upper three-fourths of the ureter and down to within two or three inches above the bladder.

The vesical and lower pelvic portions of the ureter may be reached, as Cabot has pointed out, by means of a sacral operation, or Kraske's method modified by osteoplastic, temporary resection of the sacrum. In woman the vesical portion of the ureter is accessible through the vagina.

The vesical orifice of the ureter may be reached from within the bladder by suprapubic cystotomy in man or by dilatation of the urethra, suprapubic, or vaginal cystotomy in woman.

Uretero-uterine fistulas can be treated satisfactorily by plastic closure of the vagina or nephrectomy. Implantation of the ureter into the bladder is, under favorable circumstances, the operation of the future for this condition.

Uretero-vaginal fistulas and congenital urethral or vaginal terminations of the ureter should be treated by vaginal plastic operation for displacement of the proximal end of the ureter into the bladder. If these attempts fail, and the kidney is not infected, extra- or transperitoneal implantation into the bladder should be done, and finally, as a last resort, nephrectomy.

Complete transverse wounds in the continuity of the ureter should be treated uretero-ureterostomy, after Van Hook's method of lateral implantation if possible.

Complete transverse wounds of the upper end of the ureter should be treated by implantation of the ureter into the pelvis of the kidney, as devised by Küster.

Complete transverse wounds of the ureter near the bladder should be treated by implantation into that viscus either by splitting the ureter or by invagination.

Loss of substance of the ureter too extensive to permit of uretero-ureterostomy, or too high up to permit of implantation into the bladder, may be treated by implantation on the skin or into the bowel.

Implantation into the bowel is objectionable on account of the infection which is almost certain to follow sooner or later.

Implantation on the skin in the lumbar region or the

abdominal wall may have to be followed by secondary nephrectomy, which, however, is much less dangerous than the primary operation.

Implantation into the rectum should not be resorted to when implantation into the bladder is possible.

### ON THE TREATMENT OF URINARY FISTULÆ BY SUTURE OR RESECTION OF THE URETHRA.

In cases of obstinate urinary fistulæ which do not yield to the usual methods of treatment, Southam[2] advises resection of a bit of the urethra and suture.

The points of importance to be observed are (1) sterilization of the urine by the external administration of boric acid or salol previous to operation, and bladder washes; (2) the separation of the walls of the urethra fully from the surrounding tissues at the seat of operation; (3) avoidance of the mucous membrane in suturing; (4) in closing the external wound pass the sutures deeply to include all the tissues down to the urethra; (5) to leave a catheter in the bladder, or to catheterize at regular intervals, and use bladder washes.

### ANOTHER CASE OF PROSTATIC HYPERTROPHY SUCCESSFULLY TREATED BY CASTRATION.[3]

The patient was seventy years old, with prostatic hypertrophy and severe chronic cystitis. The prostate was as large as a man's fist. Frequent and painful urination, fever, loss of appetite, and sleeplessness, were present. Palliative treatment had but little influence. There were about 150 c. cm. of residual urine. Castration was performed, and the wound healed by first intention. Eight days later there was a perceptible decrease in the size of the prostate. At the end of fifteen days it had diminished one-third in size. In a little over two months it was of normal size. A few days after the operation urination became less frequent and painful. The bladder was washed out with antiseptic fluids, and at the end of three weeks the urine became normal. There was very marked atony of the bladder, which remained unchanged for fourteen days, after which the expulsive power of the bladder began to increase; and at the end of two months the patient, free from all bladder symptoms, could empty the bladder entirely without the use of a catheter.

### SUPRAPUBIC PROSTATECTOMY.

A. W. Mayo Robinson,[4] of Leeds, reports a series of twelve cases in which he has performed suprapubic prostatectomy during the interval including December, 1887, and January, 1894. The ages of the patients ranged from sixty-one to seventy-three years, three of them being of the latter age. Only one death was attributable to the operation. In this case the fatality was due to suppuration between the bladder and rectum caused by overdistention of the rectum by the colpeurynter. One patient died from senile asthenia some weeks after the operation, having fully recovered from it and having regained the power of voluntary urination by the urethra. The remaining ten were all restored to health, with natural powers of micturition.

The author recommends the following technique: Besides asepticizing the skin by a previous carbolic dressing, and washing out the bladder with boracic lotion, he gives the patient five to ten grains of boracic acid and a little saccharine thrice daily for a few days before operation, so as to render the urine aseptic if possible. The rectal bag, by raising the prostate nearer to the manipulating finger, is of advantage; but it is important not to overdistend it, lest rupture of the rectum or inflammation of the meso-rectum ensue, for which reason he only has four or, at most, six ounces of water introduced. The bladder is distended with boracic lotion until it can be felt above the pubes, no fixed quantity being employed. In two of his cases the peritoneum was in touch with the pubes, and in one case it was so fixed to it that he had to deliberately open the serous membrane to reach the bladder, after which he carefully separated it and closed the peritoneal opening before incising the bladder, the patient being no worse for the complication.

In removing the obstruction he has found McGill's scissors or the cutting-ring forceps invented by Jessop to answer best for the sessile or pedunclated enlargement of the middle lobe; and for the ring-like obstruction he has used the scissors, first at one side and then at the other, so as to cut out a V-shaped portion, making a clear channel from the vesical pouch straight into the urethra, down which the finger is passed to see that the passage is clear. If the lateral lobes are much enlarged, the finger can be insinuated within the capsule and the adnoid masses can be enucleated with very little difficulty. Lastly, all loose pieces of tissue are cut away, and the parts are left as smooth as possible. In order to disturb as little as possible the cellular surroundings of the bladder, the edges of the vesical opening are fixed temporarily to the margin of the wound by a suture on each side before any intravesical manipulations are commenced.

Suprapubic drainage was efficient in all cases, and it was not necessary to drain through the perineum. In the after-treatment boracic acid was given thrice daily, and the bladder was washed out once or twice daily by syringing a solution of boracic acid through from the urethra to the drainage opening. The drainage-tube was removed, if possible, on the third day, and the patient allowed to sit up within a few days of the operation. As a rule, recovery was attended with very little general disturbance or discomfort, and the urine began to be passed by the urethra soon after the patient was allowed to sit up.

He considers that the operation of suprapubic prostatectomy in properly selected cases is one attended with less danger than is usually thought, and that if thoroughly and completely performed it is capable of affording such relief as may be in many instances genuinely termed a cure, and that in a class of cases which until a few years ago were looked upon as incurable.

### CASES OF EXCISION OF CONSIDERABLE PORTIONS OF THE URINARY BLADDER.

Dr. R. F. Wier,[5] of New York, relates three cases in which he has removed considerable portions of the urinary bladder for the extirpation of neoplasms of its wall. In the first case, a man fifty-nine years of age, the cystoscope had revealed a tumor on the posterior wall. The rectum was distended by a colpeurynter and suprapubic section was done, the patient being in the Trendelenberg position. A single tumor,

[2] Lancet, July 7, 1894.
[3] Mayer and Heanel: Centralblatt für die Krank der Harn und Sexual-Organe, August 23, 1894.
[4] British Medical Journal, July 14, 1894; Annals of Surgery, November, 1894.
[5] Medical Recorder, August 11, 1894; Annals of Surgery, November, 1894.

the size of a distal phalanx of the thumb, was found on the upper part of the posterior wall, somewhat to the right of the median line. To effectually get beyond it, the peritoneum was stripped off from the summit and the posterior surface for a space reaching from one seminal vesicle to the other and down nearly to the prostate. In so doing, at one point a rent was made in the peritoneum, which was at once sewn up with silk sutures and caused no after inconvenience. A triangular portion of the posterior wall of the bladder, about two and a half inches on each of its sides, including the tumor, but going widely from its base, was finally removed. Proper suture of the lower angle of this incision was found impracticable, and so no attempt to close any portion of it was made, but the space between the bladder and the peritoneum was packed with iodoform gauze, and the bladder itself was filled with iodoform gauze packed around a rubber catheter passed to the bottom of the organ. The patient did well. His wound had very nearly closed, when he was attacked by erysipelas, which, after four days, terminated in death, seven weeks after the operation. At the autopsy it was seen that the suprapubic wound had very nearly healed, the gap in the posterior wall of the bladder had closed over by a smooth cicatricial surface.

The second case, a man, fifty-five years of age, was the subject of a carcinoma of the summit of the bladder, which also involved the overlying soft parts in the suprapubic region, presenting superficially above the pubis as a tumor of the skin about the size of an English walnut, with an indurated area surrounding its base about two inches in diameter. The cystoscope revealed a tumor projecting into the bladder on its postero-superior wall. Enlarged superficial inguinal glands existed on both sides. The external growth was circumscribed by incision, and separated from the surrounding soft tissues down to its attachment to the bladder. The peritoneum was then peeled off by a blunt dissector from the posterior wall of the bladder down to the prostate, and on each side as far as the seminal vesicles. This whole exposed portion of the bladder was then excised, including a papillomatous growth in its centre, as well as the growth rising out from the summit of the bladder, the section through the bladder walls passing at least from one-half to three-quarters of an inch beyond the growth in all directions. The bladder was sewn up without difficulty from the bottom with interrupted catgut sutures, passed through all its coats; in one or two places on its summit these were reinforced by silkworm-gut sutures, only through the muscular coat. A small opening was left towards the pubis, through which a double rubber drain-tube was inserted. The wound in the abdominal wall was packed with iodoform gauze. The patient did well after the operation, leaving the hospital eight weeks later, all healed, holding his water from three to four hours. The capacity of the bladder was from four to five ounces. Two weeks after the operation on the bladder, the glands in each groin were also extirpated.

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BOVINE TUBERCULOSIS IN NEW YORK STATE. — The New York State Board of Health devotes an entire volume of its fourteenth Annual Report to a review of the work done by the State with reference to bovine tuberculosis.

## New Instruments.

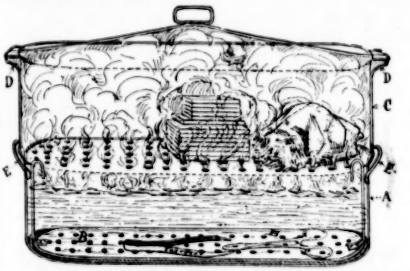
### FISH-BOILER PORTABLE STERILIZER.

BY W. L. BURRAGE, M.D., BOSTON.

A STERILIZER of moderate price, that is not too large or too heavy to be easily carried about, that is capable of boiling instruments in soda solution, and at the same time steaming enough towels and dressings for any ordinary surgical operation is shown in the accompanying cut.

Many of the sterilizers on the market are complicated, bulky and expensive. Most of them will steam instruments; but few, if any, have conveniences for boiling them in soda solution. Perhaps it is unnecessary to state that the advantages of boiling instruments in soda, the method in use in the Syms Operating Theatre, Roosevelt Hospital, and in many of the leading hospitals, are, first, that the instruments are not rusted, and the edges of the knives and scissors are not spoiled; and, second, that while the sterilization is perfect, the process occupies from five to ten minutes only.

The house dishpan used by some operators, is not clean, and does not well hold long instruments; and, besides, the soda discolors the tin, to say nothing of the annoyance of pouring out the water and handling the instruments when hot.




There is nothing especially original about the sterilizer I describe. I was on the point of having one made a year or so ago, when on mentioning it to a friend, he said that he himself was having one made on the same plan. His has given perfect satisfaction, and so has mine. I offer it to the profession, hoping that it may prove of value to others. When ready for use, the sterilizer consists of the granite-ware kettle (A), eighteen inches long, seven inches wide, and five and a quarter inches high, in which is the tray (B), with a handle at either end. The granite-ware cannot be corroded by the soda solution, and is, therefore, superior to tin. The kettle will hold any reasonable number of instruments. The remaining portion of the sterilizer is the steamer (C), which is nineteen inches long, eight inches wide, and seven inches high, and fits the top of the boiler. It is like any covered vegetable-steamer used in the kitchen, except that it has a small projection at either end (D) to hold the handles (E) of the boiler (A) when it is packed inside of steamer (C) for transportation.

The boiler may be bought of any kitchen-furnishing dealer, and any tinsmith can make the steamer. The weight of the sterilizer is about eight pounds, depend-

ing on the quality of the tin. It may be carried in a common canvas extension-case, such as may be bought at any trunk store. In length it just fits into the twenty-two inch size. In width, it is several inches narrower. The space between the case and the apparatus may be utilized for gauze, extra instruments, etc.

To operate, first remove the tray and fill the kettle half-full of water and put it on the stove. Place the towels, sponges, ligatures, and dressings in the steamer and put it on the boiler. After the water has boiled half or three-quarters of an hour, and ten minutes before the contents of the sterilizer will be needed, remove the steamer and put a small half-cupful of washing-soda crystals in the water of the kettle, and lower into it the tray on which the instruments have been previously placed.

Just before the patient is brought in the steamer is carried to the operating-table and the cover taken off by an assistant. At the same time the instruments are removed by the operator, who lifts up the now sterile handles of the tray and sets it on a sterilized towel, or in a pan of boiled water. Thus the instruments are ready for use without unnecessary handling.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL OBSERVATION.

J. G. MUMFORD, M.D., SECRETARY.

MEETING of October 8, 1894.

DR. WILLIAM C. HOLYOKE read a paper entitled,

SOME CASES OF SCARLET FEVER, WITH ESPECIAL REFERENCE TO CONTAGION AND PROPHYLAXIS.[1]

DR. FREDERICK L. JACK read

REMARKS ON STAPEDECTOMY.[2]

DR. G. A. LELAND said: The paper which has just been read bears a more than passing interest, since it has to do with an operation which is comparatively new in the annals of otological surgery, and may be regarded as a venture into a new field. Whether the operation will make for itself a permanent place in surgical procedures I suppose is a question that is not yet satisfactorily settled. We hear reports of cases in which it has been of great benefit; we also hear of cases where it has been of no benefit, or even where it has made the patient more or less worse, and, therefore, it must stand or fall according to whether it is able to produce more good or evil. It is, however, an attempt to do something for a considerable class of patients who have heretofore been condemned to a life of deafness unless perchance some accident should happen to relieve them, as has been the case in rare instances. Here in Boston we have occasion to be proud of this operation also, because it has been brought before the profession of the whole world in a definite, forcible way by one of our own number, namely, the reader of the paper, Dr. Jack. Others have perhaps thought of it before, and perhaps some others have attempted it, while still others have doubtless stumbled upon it in an accidental sort of way; but since these have not considered it of sufficient importance at the time to pursue the investigation further or to advocate it before the profession, that it might be tried, we must all agree that to Dr. Jack belongs all the credit of the initiation and promulgation of the operation.

As we have seen, it is an operation which is done among, perhaps, the most delicate structures of the human body outside of the brain cavity; and since the parts are so small it might rank in delicacy even with the operations upon the brain itself. It is also being performed in regions accessible with difficulty where the nature of the lesion it is often impossible to predict, and where the diagnosis always requires the careful consideration of the finest of fine points. Hence it is to be hoped that the operation, if it does nothing more startling will, at least, as Dr. Jack has said on a previous occasion, lead to finer and more accurate diagnoses where the study of pathological conditions because of the lamentable dearth of anatomical material must necessitate long and tedious observation.

At the risk of being presumptious, I might venture to utter a caution here, lest too much weight be given to favorable cases already operated upon, which, as the reader has said, have not extended back more than two years. Diseases of the ear are so insidious, cicatricial processes are so slow in their proliferation and in their ultimate hardening down, that it may not be improbable that the hearing may again be shut out, especially in cases where a previous suppurative process has obtained.

It is also probably true that only those cases should be operated upon which have been proved irremediable by every other means. This procedure should be the last resort, since it is evident that where the ossicular chain has been broken and the essential bone removed, no hope can be entertained from any further treatment by any means at present known. And this leads me still further to opine, that those ears should not be operated upon in which there is left a serviceable amount of hearing, since we are not yet sure enough of results to predict success; and even the small but exceedingly precious amount of residual hearing which may be only sufficient to keep a patient from a life of silence, should not be risked unless we are sure to be able to confer a benefit. Witness Dr. Blake's report of twenty-two cases in which a notable decrease of hearing followed extraction of the stapes. And this brings us back to what was said in the beginning, that if the operation after it has been perfected shall show that it injures more than it benefits, it will fall into disuse and merit only a place, albeit a useful one, in history.

[1] See 32 page of the Journal.
[2] See 34 page of the Journal.

## Recent Literature.

*Operative Surgery.* By Th. Kocher, M.D., Professor at the University and Director of the Surgical Clinic at the Berne University. 8vo, 288 pages, 163 illustrations, extra muslin. Wm. Wood & Co. 1894.

This is intended to be a book with which an operator may rapidly review operative technique. The descriptions are of operations which its author has thoroughly tested and found most efficient. His well-known skill and reputation as a surgeon are recommendations which should satisfy all. The book is what it claims to be, and is well written. The arrangement of the subject is excellent; the illustrations

well chosen; the description of operative detail clear, concise and correct. The article on "the selection of the direction of the incision" is a new feature in this class of text-book, and contains some valuable information. The list of operations described is unusual. The writer depends largely upon his plates as aids to his descriptions of anatomical detail. His style is one so intensely practical that only the important facts are presented. This makes the book best suited to the requirements of those having advanced knowledge and considerable experience in surgical work. It discusses much atypical work and could be used to advantage by a student chiefly as a supplement to the customary text-books which describe typical and routine methods. As such it is very valuable.

The work of the publisher is especially satisfactory as to paper, type, illustrations and convenient form.

*The Principles of Bacteriology.* A practical manual for students and physicians by A. C. ABBOTT, M.D., First Assistant, Laboratory of Hygiene, University of Pennsylvania. Philadelphia: Lea Brothers & Co. 1894.

While this book is more especially designed for the use of those who desire to obtain a first-hand knowledge of bacteria by practical work in the laboratory, yet the needs of others who wish only a theoretical acquaintance with the principles of bacteriology have also been borne in mind by the author. All the important methods of bacteriological investigations are clearly described, the difficulties of the beginner being carefully anticipated.

An especially valuable feature of the work is that it presents most of the time-saving and simplifying improvements on the original German technique which American bacteriologists have contributed to the science. We regret to note, however, that the rapid and thoroughly satisfactory method of preparing blood-serum culture tubes, which has been in use in Boston and elsewhere for some time, has not been given a place. The great and growing importance of cultures in the diagnosis of diphtheria in now everywhere appreciated, and the large quantities of this rapidly prepared culture media now used proves its utility, so that a full description of the method of its preparation is eminently desirable in a work of this kind.

The book is now in its second edition, and bids fair to hold its deserved success. It has been considerably enlarged and greatly improved by the insertion of additional chapters and original drawings.

*A Primer of Psychology and Mental Diseases.* By C. H. BURR, M.D., Medical Superintendent of the Eastern Michigan Asylum, etc. Pp. 104. Detroit, Mich.: George S. Davis. 1894.

This little manual is designed for the instruction of asylum nurses, and is well adapted for that purpose. If chapters on psychology and the different forms of insanity are indispensable for thorough instruction in nursing in cases of mental disease, they could hardly be clearer or more condensed than those which comprise three-quarters of this book.

The practical part, however, is the chapter on the management of cases of insanity. It finds place in the remaining quarter of the volume and to our mind might well have been amplified at the expense of the preceding chapters, with advantage to nurses and attendants; as it is full of useful suggestions and sound advice.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, JANUARY 10, 1895.

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## BRIGHT'S DISEASE OF A PRIMARILY INFECTIOUS NATURE.

AMONG the acquisitions to medical knowledge of the last fifteen years is the demonstration of the unity of Bright's disease. Although the terms "interstitial nephritis," "parenchymatous nephritis," are still necessary in the interest of precision, they do not represent two fundamentally different pathological processes, but only modalities of one, affecting both the connective-tissue stroma and the secretory substance — sometimes one, sometimes the other, predominantly — but always with marked tendency to produce the fibroid, contracted kidney as the ultimate phase.

Gaucher has described a nephritis caused by incomplete oxidation of azotized extractives, and Da Costa has demonstrated an albuminuria in which uric acid (or uric with oxalic) seems to be the causal agent.

The old and prevalent notion, so forcibly stated by Christison and Rayer, that alcoholism is the most common cause of chronic nephritis with albuminuria (three-fourths or four-fifths of all cases, according to Christison) has not been confirmed by more recent investigations; and, if we may trust the Report of the British Investigating Committee upon Alcoholism, we must believe that "there is little connection between chronic Bright's disease and alcoholism." Other observers do not agree with so sweeping a statement; but no one disputes the agency of lead-poisoning in producing fibroid and atrophic changes of a grave and irremediable nature. The action of cold, and especially of damp cold, in engendering nephritis is contested by no one; at the same time, it is now agreed that fewer cases of both acute and chronic Bright's disease are due to this cause than were once supposed. Lecorché and Talamon even affirm that chronic nephritis due to cold alone is a rarity.[1]

The *modus operandi* of nephritic disease caused by autointoxication — by poisons introduced into the economy with food, or formed in the alimentary canal by morbid fermentations, or even fabricated by the cells

[1] Traité de l'albuminurie, etc., p. 443.

of the organism (leucomaïnes) — has been well elucidated by Bouchard and others. The kidney is the principal channel of elimination, and is itself often morbidly impressed by these agents and becomes inflamed.

The predominant rôle of infectious agents in the etiology of Bright's disease (especially of the acute form) has been within a few years brought to light. All are agreed as to the secondary infections of the kidney. The kidney becomes inflamed by the passage through it of the microbes of scarlatina, pneumonia, typhoid fever, or some other infectious disease from which the organism is suffering, or by the toxic products of microbic activity. This has been well shown by Maragliano[2] in relation to nephritis in cases of acute pneumonia; by Weinbaum[3] concerning the lesions of puerperal nephritis; by Openheim in reference to acute nephritis after varicella;[4] by Ashby and Hilton-Thompson and others, in connection with acute nephritis following diphtheria;[5] by Kompe[6] in reference to nephritis accompanying typhoid fever; and by numerous other observers in relation to the above and other infectious diseases (especially scarlatina) with sequent or complicating nephritic inflammations. The microbes of many of these infectious maladies have been detected in properly stained sections of the kidney. Thus, the pneumonia-diplococcus has been found in sections of the inflamed kidney by Neuwerk, Bozzolo, Weichselbaum, and Netter; Netter has found it in the urine. Faulhaber[7] has found the typhoid bacillus in stained sections in four cases of nephritis following typhoid fever, and the streptococcus of erysipelas has been observed by numerous bacteriologists in sections of inflamed kidney complicating that disease.

In this connection, it is interesting to note the painstaking researches of Mannaberg upon the relation of acute nephritis and the streptococci found in experimentally induced bacterial endocarditis. In eleven cases of acute Bright's disease in man the urine was found to contain streptococci; he cultivated the streptococcus, and inoculated dogs and puppies, producing an intense renal inflammation, and in the puppies an ulcerative endocarditis as well.[8] The cocci do not appear to select the kidneys as a special culture field, but in passing out through this emunctory, they inflame the glomeruli and tubes. Mannaberg looks upon these micro-organisms as the special pathogenic cause of the cases of acute Bright's disease which he reports, and states that cases belonging to this category appear to generally run a brief but quite severe course, very often terminating favorably. He remarks that the older views as to the origin of Bright's disease from exposure to cold and dampness are constantly being more and more restricted, and there are constantly being added factors of causation which have previously scarcely been conjectured.

[2] Riforma Medica, Naples, October 3, 1889.
[3] Zeit. f. Klin. Med., October, 1887.
[4] Berlin Klin. Woch., December 26, 1887.
[5] British Medical Journal, April 20, 1893.
[6] Münch. Med. Woch., March 24, 1890.
[7] Traité de Méd., t. v., p. 668.
[8] Quoted from Sajous' Annual, 1892, vol. i, L. 2.

All this is a natural outcome of the increase of our knowledge of the relation of animal tissues and functions to micro-organisms.

That there is a primary acute bacillary nephritis is also in accordance with the researches of Letzerich,[9] who has observed a number of cases of renal inflammation due to a characteristic bacillus from cultures of which he has been able to reproduce the nephritis in rabbits. But to Bamberger belongs the credit of first calling attention to this primarily infectious form, which has since been studied by Aufrecht, Litten, Babes and Perret, lastly by Fiessinger. The individuals are struck down in apparent health, and present from the onset symptoms of gastro-intestinal disorder, with fever, which is sometimes intense. The liver and spleen are enlarged; the principal nervous symptoms are headache, restlessness, delirium, modification of the pupils, prostration.[10] In two patients Litten observed stiffness and contracture of the nucha. The skin may become the seat of various exanthems, and there are often ecchymoses and hemorrhages. The urine is scanty and loaded with albumin. The infiltration of the integument is constant; the anasarca is generally, though far from invariably, limited to the lower extremities. The cases recorded by Babes and Perret, like those of Litten and Fiessinger, were not very grave ones; those which proved fatal terminating in four to six days of "convulsive or comatose uremia."

Fiessinger[11] has made many interesting observations on this form of Bright's disease. His first case gave the signal of invasion to an epidemic of acute Bright's disease in a canton of Oyonnax, in which fourteen persons in a village of five hundred came down with this disease. Only one died; the others got well in a period of time varying between six days and three weeks after having presented the ordinary symptoms of the malady in question. Eighteen months afterwards he witnessed another epidemic of acute Bright's disease in another locality, where, after a few benign cases, the disease broke out in a very virulent form. He believes in the contagiousness of the malady. In one family, a young girl was taken sick with the disease, and in less than a week her brother who had been much with her came down with symptoms of a severe character; angina, puffiness of the face, albuminuria, suppurative parotitis were incidents of the infection. Three weeks afterwards a young girl occupying the adjoining room became affected in a similar manner.

Fiessinger further relates a number of similar incidents which, he thinks, point to contagious transmission. The mother of a family was taken sick with acute Bright's disease. A daughter who had been away, came home during the mother's sickness, and fifteen days after became nephritic, with anasarca, vomiting and albuminuria. A middle-aged man occupying the same house, was taken down with Bright's

[9] Loc. cit.
[10] Semaine Médicale, May 12, 1894.
[11] Loc. cit., 1894, p. 221.

disease of hemorrhagic type, with anuria, extreme oppression, cephalalgia. Six months later his little girl contracted the same disease. These facts seem to point to something more than mere coincidence. Fernet relates similar cases;[12] Lecorché and Talamon record ten observations where the disease attacked simultaneously or successively several members of the same family, living together.[13]

Fernet thinks that primary infectious nephritis is seldom chronic. The nature of the germ is still unknown. Cultures of the blood have always remained sterile. Fiessinger made careful cultures of the urine in a typical case. He obtained colonies of the staphylococcus albus.

Mircoli has observed fourteen cases of primitive microbic nephritis in children, aged from three to ten years. All died. The autopsy disclosed in the vessels of the cortical substance and in the pyramids, masses of elongated corpuscles surrounded by a whitish capsule, arranged two by two or in series of six. It will be remembered that Mannaberg found only the streptococcus. Babes, in the urine of a patient believed to be affected with this disease, found numerous stubbed rods with rounded ends; the vessels of the kidneys contained similar rods; and there was cloudy swelling of the epithelium. These data are very uncertain. Every experimenter describes a different microbe.

Fiessinger, impressed by this fact, affirms that the clinical teachings are clearer than the bacteriological. "In one case we witness a suppurative parotitis after contagion in a nephritic patient; we note elsewhere cases of acute Bright's disease with hematuria, in the same ward with patients suffering from streptococcus-erysipelas and panaris. These facts, added to the observations of Mannaberg who cultivated the streptococcus found in the urine of eleven nephritic patients (vide supra), warrant the belief that at least in certain epidemics of acute Bright's disease the streptococcus is the pathogenic agent. I do not pretend that this hypothesis covers all the facts, and I deem it probable that there are various micro-organisms competent to produce this affection, just as ulcerative endocarditis, infectious angina, etc., may have a multiple microbic origin."

He reports, in all, thirty-four cases, with the following results: Recovery in less than a month, 28; recovery in two months, 2; acute, terminating in chronic disease, 2; deaths, 2. In several of these cases the infection was so attenuated — manifesting itself only by puffiness of the face and a little albumin in the urine — that a few days of the milk-diet treatment were followed by complete recovery. As diagnostic criteria, he insists on the character of epidemicity, and the, generally, short duration and mildness of the infectious nephrites. That some forms are very grave need not be repeated; these are classed under the head of hyperacute primary bacterial nephritis.

[12] Mal de Bright d'origine infectieuse, Semaine Médicale, 1888, p. 310.
[13] Cited by Fiessinger.

## SUCCESSFUL LAPAROTOMIES FOR PERFORATING TYPHOID AND PERFORATING GASTRIC ULCERS.

ABOUT three years ago Dr. Van Hook, of Chicago, reported [1] a successful case of laparotomy for intestinal perforation in typhoid fever, upon which there was editorial comment in the JOURNAL, November 26, 1891. Since then, in 1894, Netschagaw, of St. Petersburg, has reported a successful case of resection of bowel after perforating typhoid ulcer; and to-day we are glad to note another successful case reported [2] by Dr. Robert Abbe, of New York.

In van Hook's case the operation was performed nine hours and a half after the occurrence of the perforation; in Abbe's case the operation was performed nearly three days after the perforation. Abbe's case was apparently in all respects a much less favorable one for surgical interference, to judge from his statement of the conditions.

"The patient was in too low a state to be removed to a hospital, so the most complete arrangements possible were made to do a thorough operation at the house. A median incision below the navel exposed distended coils of deeply congested and greatly inflamed intestine, smeared with sticky lymph. The pelvis and lower abdomen were filled with a collection of foul, purulent, and fetid intestinal extravasation. This was feebly confined by matted coils of intestines, loosely glued together, that broke apart on being touched, but which, being recognized, enabled me to introduce clean laparotomy sponges under the upper abdominal wall, where a few coils were seen which showed more recent inflammation. Two pints of foul, purulent fluid and thick lymph were cleaned out, and the abdomen irrigated with warm and weak sublimate solution, 1 to 20,000, followed by plain warm-water irrigation.

"Search now revealed the cause. The lower part of the ileum showed many thick oval patches in its wall — their long axes parallel to that of the gut, and easily identified by touch as the gut was passed through the fingers, and shown also by increased subperitoneal hyperemia. One such inflamed Peyer's patch showed a gangrenous perforation a quarter of an inch in diameter, from which intestinal contents were seen to pump out. This was promptly closed by interrupted silk sutures, over which two layers of Halsted mattress stitches were placed, these being found to be the only suture that would hold in the tender and inflamed intestinal coat. A large abdominal tamponade of iodoform gauze was placed within the abdomen and pelvis, *and no attempt made to close the wound.* A hot black coffee and whiskey enema assisted greatly in preventing shock; the patient was put back to bed in three-quarters of an hour from the beginning of etherization.

"She passed a good night, and had a stronger pulse next morning. Pulse, 132; temperature, 102.5° F.; tympanites less. At the end of forty-eight hours after operation, as she was in good condition, except for tympanites, I removed the tamponade, reapplied a loose one, and gave five grains of calomel. This produced numerous loose movements and she felt much better. Temperature, 101.5° F.; pulse, 120. A little fluid feces leaked from the wound after the calomel action, showing that the perforation had slightly opened. This continued for two weeks, when it ceased, and the abdominal wound pursued the usual course, closing in rapidly

[1] Medical News, November 21, 1891, p. 591.
[2] Medical Record, January 5, 1895, p. 1.

by granulations, and has left a narrow and firm scar. After the third day her appetite improved and a rapid convalescence ensued."

Three years ago twelve laparotomies for undoubted intestinal perforation in typhoid fever had been reported, with one recovery (van Hook's case). Abbe adds five (including his own and Netschagaw's) to this list, with two recoveries. All five of these cases occurred in 1894. The statistics at present stand, seventeen cases with three recoveries. Probably some fatal cases have never been reported.

Dr. Newton, of Chicago, has reported one case, where operation was refused, but in which an abscess of the pelvis was opened in the perineum a fortnight after the occurrence of the symptoms, and the patient recovered.

In the same issue of the *Medical Record* containing Dr. Abbe's case, Dr. A. V. Atherton, of Toronto, reports three cases of perforation of the stomach from ulcer. In one of these there was spontaneous recovery, and death three years later, apparently from a second perforation; in another case an operation was done followed by recovery. In this case the operation was done about fifteen hours after the occurrence of perforation. The statistics of operation in cases of perforation of the stomach by ulcer were given in the JOURNAL, November 15, 1894, p. 495, though two unsuccessful cases — one by Weir, of New York, and one by Mouisset, of Lyons — were omitted. The importance of early operation, within the first fifteen hours, was then emphasized, and this Dr. Atherton reiterates in reviewing his cases.

Dr. Abbe justly says that perforation, in whatever part of the gastro-intestinal tract it may occur, is still perforation. He does not see why there should be one procedure for appendicitis and another for typhoid fever, and he thinks operative treatment for the treatment of typhoid perforation will be popularized and perfected, as it has been for appendiceal perforation. The chief discouragements hitherto to a greater readiness to insist upon operation have been the low condition of typhoid patients and the unfavorable condition of the intestinal wall. Experience, however, begins to teach that to modern surgery these are not insuperable obstacles; though we still fear that a degenerated heart muscle, accompanying collapse, and the condition of the gut wall will militate against a large percentage of successful cases. The strongest argument in favor of interference under such circumstances must continue to be the fatality of non-interference. Early operation after waiting for recovery from the first collapse and an open abdominal wound are generally advised.

## MEDICAL NOTES.

POSTPONEMENT OF THE DERMATOLOGICAL CONGRESS.— Dr. Geo. T. Jackson informs us that the Third International Dermatological Congress will not be held this year, as proposed. It is possible that it may not be held until 1897.

HONORS TO DR. ROUX. — Dr. Pierre Paul Emil Roux has been promoted to the ranks of Commander in the Legion of Honor, for "Exceptional services rendered to science and humanity."

INFLUENZA IN THE CHANNEL SQUADRON. — According to the *Medical Press* an outbreak of influenza has occurred in the British Channel Squadron. The two warships mainly infected are the *Royal Sovereign* and *Endymion*, upon board of which about ninety cases are at present under treatment. In consequence of the outbreak the squadron was to spend Christmas at Gibralter.

THE TRANSMISSION OF CHOLERA BY FLIES.— Dr. McCrae thinks that in the epidemic of cholera which took place last year in Gaya Jail, in India, the contagion took place through the agency of flies. Positive proofs of the transfer of the bacilli by flies in this epidemic have not yet been obtained, but the experiments of Haffkine are suggestive. Jars of sterilized milk were left exposed to the air, and consequently to the flies, which were numerous in the jail; within a short time Haffkine was able to demonstrate the presence of comma bacilli in the milk. As fully explained in an editorial in the JOURNAL for February 16, 1894, the possibility of the transmission of cholera by flies has been proved, and their agency in the spread of the New York cholera epidemic was shown to be probable.

THE RELATIONS OF ANTITOXIN TO THE COMPLICATIONS OF DIPHTHERIA.— In No. 51 of the *Deutsche Med. Wochenschrift*, Treymann describes a case of acute hemorrhagic nephritis occurring in a case of diphtheria treated by Behring's antitoxin. The attack, which occurred after an injection given on account of a slight recrudescence of the disease after the worst was over, leads Treymann to conclude, that inasmuch as ordinarily the nephritis of diphtheria occurs at the height of the disease, this attack must have been due to the antitoxin treatment. In order to disarm the unjust criticism which would with certainty be made of the treatment on account of this case, Schwalbe publishes in the same journal an account of an acute hemorrhagic nephritis occurring (also during convalescence) in a case of diphtheria not treated by antitoxin. He (Schwalbe) remarks that in the nephritis of diphtheria, in contradistinction to that of scarlet fever, blood is seldom present in the urine, a fact which would be almost certain to result in a hemorrhagic nephritis being ascribed to the new remedy. He, therefore, very justly concludes that he ought to publish his case in which the disease occurred independently of serum treatment!

A FATAL CASE OF POISONING BY QUASSIA. — Ferdinand Venn, M.D., of Chicago, in a letter to Dr. H. C. Wood published in the *University Medical Magazine* for this month, reports a case of fatal poisoning from a decoction of two ounces of quassia injected into the rectum of a child for the treatment of seat worms. The rectum was not perforated by the

nozzle of the syringe. According to Dr. Wood, this is the only case on record of poisoning by this drug, although the experiments of Hoppe have shown that the active principle is a poison in frogs, especially affecting the nerve trunks and muscles. Fifteen milligrammes of it have caused disagreeable symptoms in man, among them being evidences of toxic gastro-enteritis.

KOCHER'S METHOD FOR THE REDUCTION OF OLD DISLOCATIONS OF THE HUMERUS. — Morton, in the *Philadelphia Polyclinic*, December 15, 1894, reports three cases in which the attempt to reduce subcoracoid dislocations of the humerus of long standing by Kocher's method has resulted in fracture of the surgical neck. He therefore concludes that by this method special strain is brought upon the surgical neck of the bone, and that while it is the method of election in fresh cases, in cases of long standing other methods should be given preference.

SUCCESSFUL OPERATIONS FOR DOUBLE ANEURISM. — Quenu presented at the Academy of Medicine in Paris, on November 4, 1894, a patient thirty-six years old, upon whom he had successfully performed extirpation of an aneurism of the right external iliac artery on December 5, 1893. The aneurism occupied the whole right iliac fossa, and was as large as the head of a child at term. Sixteen days later an aneurism of the left femoral artery in the inguinal region was extirpated in the same patient. Recovery was uneventful, and at the time the patient was shown, he had been for a month following his occupation, as a clown at the Nouveau Cirque.

A REORGANIZED "SCIENCE." — The weekly journal, *Science*, is to be published the present year under the direction of an editorial committee in which each of the sciences is represented by a man of science who is at the head of his department. Among the members of the committee are Prof. H. P. Bowditch of Harvard University (physiology), and Dr. J. S. Billings of Washington (hygiene).

### BOSTON AND NEW ENGLAND.

SUPPORT FOR THE INDEX MEDICUS. — The Boston Society for Medical Improvement, at its annual meeting January 7th, appropriated a certain sum from its reserve funds for the support of the *Index Medicus*, on condition that similar steps should be taken by other societies and institutions in Boston and other cities, which are or ought to be interested in securing the continued publication of this valuable periodical.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, January 9, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 97, scarlet fever 52, measles 71, typhoid fever 6.

BEQUEST TO THE MASSACHUSETTS GENERAL HOSPITAL. — Under the will of the late Henry Saltonstall, the Massachusetts General Hospital receives, at the death of his widow, $10,000, and a further sum, in common with Harvard College and the Institute of Technology from the residue of the estate.

THE FREE HOSPITAL FOR WOMEN. — The new Free Hospital for Women on Cumberland Road, Brookline, was dedicated on January 1st, and opened for the reception of patients on the following day. The new, commodious and thoroughly equipped building forms a marked contrast to the inconvenient and contracted quarters on East Springfield Street, where the excellent work of the institution has been carried on for nineteen years.

THE NORTHAMPTON LUNATIC HOSPITAL. — The thirty-ninth annual report of the trustees of this institution shows that during the year ending September 30, 1894, 652 cases were treated. The daily average of patients in the house was 494.11. Thirty cases were discharged as recovered, 14 much improved, 28 as improved, 36 as not improved. The report states that the number of acute cases increases each year, and with this increase comes increased work in caring for them, and the necessity for more attendants. A new dormitory has been completed during the year, an excellent system of ventilation installed, and various other improvements made, including heating apparatus, elevators, apparatus for the laundry, etc. The trustees express "their satisfaction with the superintendent and his assistants for their faithful and efficient service in the care of the patients and the successful management of the institution."

CLOSE OF THE INVESTIGATION OF BOSTON PUBLIC INSTITUTIONS. — The readers of the JOURNAL have without doubt followed the accounts of the investigation of the Boston Public Institutions, which has been dragging its slow length along throughout the summer and autumn, in the daily papers. The close of the investigation will be hailed with relief. The report of the majority of the committee on the care and management of public institutions was accepted by the Board of Aldermen by a vote of eleven to one, the one dissenting vote being cast by the framer of the minority report. In the main the majority report inclined to ascribe the evils which had been brought out in the course of the investigation to the system of management, and not to those in charge of the various institutions, and advocated changes in the system, rather than in the *personnel* of the management. The minority report, on the other hand, recommends an entire change in the make-up of the Board of Commissioners of Public Institutions, as well as the removal of the entire force which is at present in charge of the institutions down the harbor. It is noteworthy that the abuses brought out by this investigation, and the changes deemed necessary, were, as was to be expected, in the main the same as were brought out in the report of the committee previously appointed by the mayor to visit the institutions and report as to their condition and management.

NEW YORK.

THE NEW YORK COUNTY MEDICAL ASSOCIATION. — At the meeting of the New York County Medical Association, held December 17th, a resolution was adopted protesting against the appointment by Governor-elect Morton of a homeopathic practitioner to supersede Dr. Joseph D. Bryant in the position of Surgeon-General of the State. At the same meeting Dr. A. G. Am Ende read a paper on the "Treatment of Diphtheria," in which he reported some remarkably good results from the local use of boroglyceride and the systematic internal administration of quinine in solution. Out of one hundred cases treated by him in the last three or four years, there were but four deaths, and in these, he claimed, the circumstances were such when the patients were first seen as to render a fatal result almost inevitable. Cases that were promptly treated, he said, seldom lasted over five days, and were generally convalescent before that. The boroglyceride was applied hourly to the fauces by means of a small camel's hair brush. The nasal passages were very rarely invaded by the diphtheritic process, but where this was the case he employed a douche of chlorate of potassium and boric acid.

THE APPROPRIATION FOR THE BOARD OF HEALTH. — The Board of Estimate and Apportionment has fixed the appropriation for the Board of Health for the year 1895 at $451,880, and in this amount is included $30,000 for the purpose of producing antitoxin. The appropriation for the Department of Charities and Correction was $2,467,521, and among the items included are $10,000 for vapor and sulphur baths in Bellevue Hospital and $35,000 for the employment of more attendants in the city asylums for the insane.

DEATH OF THE OLDEST NEGRO WOMAN IN AMERICA. — Millie Jefferson, believed to have been the oldest negro woman in America, died at the residence of her great-grandson in New York on December 17th. The date of her birth, March 30, 1785, is definitely known; so that at the time of her death she was one hundred and nine years, eight months and sixteen days old. She was born on the plantation of Thomas Jefferson in Virginia and married the body-servant of that distinguished statesman. Three of her nine children survive her and there are fifty-seven grandchildren and twenty-six great-grandchildren living. After the Civil War she moved from Virginia to Louisiana, and had resided in New York only for the last eight years.

A TEST OF NEW YORK ANTITOXIN. — During the past week the first antitoxin prepared under the auspices of the Board of Health has been put to practical use, and Drs. Biggs and Park have expressed themselves as satisfied with its qualities. It is now being employed in the treatment of diphtheria patients at both the Willard Parker and Riverside Hospitals.

A DECREASE IN THE DEATH-RATE. — During the year 1894 there were reported 41,412 deaths in the city. Of these, 17,622 were in children under five years of age, and 26,149 were among the tenement-house population. This is a considerable decrease from the preceding year, and the diminution in the death-rate is specially marked in the tenement-house districts.

OYSTERS AND TYPHOID FEVER. — At a meeting of the State Fish and Game Commission held in Albany January 4th, the State Oyster Inspector presented a report in which he stated that he had fully investigated the subject of the possibility of oysters becoming contaminated with typhoid fever germs while undergoing the "floating process," and that he had found but one stream, situated on Staten Island, where such danger existed. He was ordered by the Commissioners to demand a discontinuance of the use of this stream.

THE NEW HEALTH OFFICER OF THE PORT OF NEW YORK. — The profession is generally well pleased with the appointment by Governor Morton of Dr. Alvah H. Doty to the position of Health Officer of the Port of New York, to succeed Dr. Jenkins. For many years Dr. Doty has been in the service of the Board of Health and he has won distinction by the excellent work which he has done in all the different positions that he has held. He was born in Albany and studied medicine in the Bellevue Hospital College, New York, from which he was graduated with high honors in 1878. He soon afterwards became attached to the Health Department; and after serving in various capacities was promoted in 1892 to the head of the Bureau of Contagious Diseases. He is also surgeon of the Ninth Regiment of the National Guard.

DEATH OF DR. GOLDTHWAITE. — Dr. Henry Goldthwaite, for the past sixteen years the resident physician of the Fifth Avenue Hotel, and one of the most highly esteemed practitioners in the city, died of apoplexy on January 3d. He was born in Mobile, Alabama, April 13, 1842, and was graduated at Princeton in 1860. At the beginning of the late war he entered the Confederate service as a private, and eventually rose to the rank of Major. After the war he engaged in the banking business and for a time had charge of the Southern interest of the firm of Brown Brothers. He then decided to study medicine, and in 1876 was graduated from the Bellevue Hospital Medical College, New York. For a number of years he was in the corps of instructors at Bellevue, and up to the time of his death was one of the visiting physicians at Charity Hospital on Blackwell's Island. A widow and one son and daughter survive him.

## Miscellany.

### THE NEW YORK MEDICAL COLLEGE.

"A SHORT Sketch of the New York Medical College, with its Charter and Complete List of the Officers and Graduates," is the title of an interesting pamphlet prepared in 1883 by the late Edwin Hamilton Davis, M.D., and found among his papers. It is published for the following excellent reasons:

"The college, in 1858–9, had the misfortune to lose thirty odd diplomas, under the following circumstances: the class had been examined, the diplomas ordered and properly signed by the faculty, and awaiting the insertion of the names of the graduates, when, a few nights before the Commencement, a violent storm occurred which blew off a sky-light and deluged the closet where the parchments were kept. A new set was ordered and the damaged ones were carelessly left uncancelled.

"Some months after this occurrence, the janitor of the college was dismissed, and with him disappeared the wrinkled diplomas. It was discovered afterwards, that he had disposed of many of them in this country, and a few in London, as two have been sent from the latter place to our city authorities for certification. The late law requiring physicians to register their diplomas has brought to light quite a number here. These facts show how important it is to place in the hands of the profession a complete and authentic list of its graduates. Another reason for this publication is, that since the college closed in 1864, its alumni feel somewhat as orphans, and desire to have something to show that their *alma mater* was a veritable institution, and highly respected."

The college obtained its charter from the New York Legislature in 1850, in the interest of higher medical education. The institution struggled along for ten years without sufficient patronage, although upon its faculty were the names of many men of high standing in the profession. Fearing still greater losses owing to the withdrawal of Southern students occasioned by the war, the faculty, nine in number, resigned. On April 21st, the school was reorganized with a new faculty. During the next three years there were numerous changes in the faculty; and finally, in 1864, the college building was sold, and the school discontinued.

## "A MEDICAL MAN AS PARTNER."

THE *Australasian Medical Gazette* publishes the following:

TO THE EDITORS OF THE AUSTRALASIAN MEDICAL GAZETTE. SIRS, — Being a curious sort of character, I answered the following advertisement: "Wanted, a Medical Man as PARTNER, to tour the colonies, good paying proposition. Address, Bohemian, Herald Office," which appeared in the *Sydney Morning Herald* of October 6th, with the result that I obtained the answer which I thought would be interesting to your readers. Trusting that no man will disgrace our noble profession by accepting such an appointment, I am, etc., EAGLE EYES.

[ANSWER.]

6 FISHER'S RESERVE, PALACE STREET, PETERSHAM, October 8, 1894.

DEAR SIR, — Re proposition to tour the colonies. My proposition is to make a tour of the colonies, so that pleasure and profit will result therefrom. "Briefly," the *modus operandi* is to hire a Hall in each town we visit, and advertise a course of medical lectures on the "Social Evil," "Population Question," etc., etc. One lecture showing the fallacy of the "Malthusian Theory," and the injury of the checks advocated by Mrs. Besant, and introducing superior methods of preventing large families, etc., etc. These are burning questions with the masses and information concerning them would be eagerly sought. Another lecture, on the "Cause and Cure of Contagious Diseases," describing the latest scientific methods of curing such disease, also how to positively prevent contagion, etc. I will undertake to deliver these lectures in a clear, logical, and humorous manner, and advertise from the platform the necessity of securing skilled advice for various ailments at a nominal cost, etc. You could attend to the patients, etc., at stated hours during the day. Now, if you think favorably of my proposition, let me know and I will meet you by appointment and we can arrange the details. I am sure there is plenty of money to be made if taken in hand and worked properly. But if you are circumscribed by ancient notions of medical "ethics" and such like nonsense you will let custom dominate your reason and miss the opportunity. Further particulars when we meet.

Yours faithfully,
BOHEMIAN.

## UNUSUAL MALFORMATIONS OF THE BRAIN.

AT the meeting of the Association of American Anatomists in New York on the 29th of December, in connection with the general subject of "The Significance of Anomalies," Prof. B. G. Wilder showed three remarkable specimens from the collection of Cornell University.

(1) An adult human brain with a complete interruption of the central fissure. The total number of such cases recorded does not exceed twenty.

(2) A sheep's brain lacking the callosum or great cerebral commissure. Several human brains with this defect have been described, but the only other cases in animals are three cats, all in the Cornell Museum.

(3) A three months' human fetus where the left olfactory bulb, commonly rudimentary, is half as long as the cerebrum, as in most of the lower animals, and contains a considerable cavity. It has long been a belief of Professor Wilder that the olfactory apparatus is primary and of great morphologic importance; that the recognition of food by the smell was once more essential than reflection upon its qualities. The specimen in question, believed to be unique, suggests the possibility of reversion toward a far-off ancestral type.

## THE IMMUNITY CONFERRED BY AN ATTACK OF INFECTIOUS DISEASE.

MAISELIS,[1] has published important statistics bearing on the subject of the length of the periods of immunity conferred by attacks of infectious disease. This well-known principle, which is the basic principle of the work of Jenner, Pasteur, Koch, Behring, and of all the workers in the field of serum therapeutics, has been misstated by various writers on medicine, some of whom affirm that the survival from one attack of an infectious disease confers life-long immunity. Gregory,[2] for instance, says: "The immunity against a second attack of an infectious disease is one of the most universal and important principles in pathology. It is applicable not only to variola, measles, etc., but to all diseases which are due to a poisonous influence or miasm." Samuel[3] says: "By the survival of a single attack of an infectious disease, immunity is generally conferred for the remainder of life." The same opinion has been expressed by Hebra, Henoch, Thomas,

[1] Virchow's Archiv, vol. cxxxvii, No. 3.
[2] Vorlesungen über die Ausschlagefieber.
[3] Eulenberg's Real Encyclopedia, second edition, vol. x.

with regard to the acute exanthemata; by Griesinger, Murchinson, Zuelzer, as to typhoid fever; Audouard as to Asiatic cholera.

On account of the great theoretical and practical interest of the question, Maiselis has collected from literature the following authenticated cases of repeated attacks of infectious diseases in the same patient:

SMALL-POX.— Two attacks, 526 cases; three attacks, 9; seven attacks, 1; total, 536.
SCARLET FEVER.— Two attacks, 144 cases; three attacks, 7; four attacks, 1; eight attacks, 1; seventeen attacks, 1; total, 154.
MEASLES.— Two attacks, 103 cases; three attacks, 3; total, 106.
TYPHOID FEVER.— Two attacks, 203 cases; three attacks, 5; four attacks, 1; total, 209.
ASIATIC CHOLERA.— Two attacks, 29 cases; three attacks, 3; four attacks, 2; total, 34.

In order to avoid the danger of including cases in which relapse might have been mistaken for a second attack, only those cases have been included in the preceding tables where the interval between the attacks was sufficiently long to preclude the possibility of the second or third attacks being relapses.

Considering the fact that all cases of second attacks of infectious disease are not recognized, and that the deeply-rooted belief in immunity among the laity, as well as among physicians, often renders the diagnosis of a second attack difficult to establish, one is led to believe that repeated attacks of infectious diseases may not belong to the rarities in medicine. This consideration also tends to establish the analogy between the immunity conferred by natural and artificial processes. The quantitative principle of immunity suggested by Ehrlich and systematically elaborated by Behring applies also to the natural processes of immunization.

It seems probable that so many difficulties would surround an exact determination of the period of immunity conferred by a given attack of infectious disease, that no exact statement of the safety period could be applied to particular cases. If a child is taken with scarlet fever, we have no means of estimating the amount of toxin absorbed, or the length of time the so-called natural antitoxin of the disease is present in effective quantity. The period of immunity conferred by the injection of given quantities of the artificial antitoxin of approximately known strength, is a matter of doubt and study; and the estimated length of the period of immunity, as defined by Behring himself, has lately been changed. If the period of immunity is so difficult to compute in a case where we can approximately calculate the amount of antitoxin injected, how much more difficult will it be to calculate that conferred by the absorption of an unknown amount of toxin, and consequent antitoxin production?

## Correspondence.

### CANCER OF THE UPPER LIP, ETC. CORRECTION.

DENVER, COLO., January 2, 1895.

MR. EDITOR: — Permit me, if you please, to correct the JOURNAL'S error in the heading of my very brief note on page 640 of the issue of December 27th. It should read: "Fairly Extensive Cancer of the Upper Lip; Excision; Freedom from Recurrence at End of Three Years." And line 26 should be made: "a *fair* margin of healthy tissue" etc. Very truly yours,

CHARLES A. POWERS, M.D.

### METEOROLOGICAL RECORD,

For the week ending December 29th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | Relative humidity. | | Direction of wind. | | Velocity of wind. | | Weather. * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S ..23 | 30.40 | 20 | 23 | 17 | 58 | 68 | 63 | N.W. | N.W. | 15 | 13 | C. | C. | |
| M..24 | 30.36 | 20 | 30 | 11 | 75 | 77 | 76 | N.W. | S. | 6 | 8 | O. | O. | |
| T..25 | 29.91 | 38 | 48 | 28 | 92 | 73 | 82 | S.W. | W. | 8 | 17 | O. | C. | .19 |
| W..26 | 30.44 | 22 | 26 | 18 | 51 | 47 | 49 | N. | N.E. | 6 | 9 | C. | O. | |
| T..27 | 29.76 | 33 | 44 | 22 | 100 | 58 | 79 | N.E. | W. | 42 | 30 | | F. | 2.32 |
| F..28 | 30.05 | 14 | 20 | 9 | 69 | 61 | 65 | W. | N.W. | 14 | 15 | O. | F. | |
| S...29 | 29.92 | 12 | 17 | 8 | 56 | 48 | 52 | N.W. | W. | 16 | 17 | O. | C. | |
| ☞ | 30.12 | | 29 | 16 | | | 66 | | | | | | | 2.51 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatning; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 29, 1894.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,856,000 | 670 | 248 | 15.00 | 17.55 | 1.05 | 8.10 | 1.80 |
| Chicago | 1,560,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139.457 | 404 | 125 | 15.59 | 12.75 | 1.75 | 13.75 | .75 |
| Brooklyn | 1,043,000 | 397 | — | 13.75 | 19.75 | 1.00 | 1.75 | — |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 215 | 59 | 11.75 | 15.51 | .47 | 8.93 | 1.41 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | — | — | — | — | — | — | — |
| Cincinnati | 325,000 | — | — | — | — | — | — | — |
| Cleveland | 325,000 | 93 | 40 | 20.33 | — | 3.21 | — | 14.98 |
| Pittsburg | 272,000 | 84 | 31 | 13.09 | 19.04 | 8.33 | 1.19 | 1.19 |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 32 | 13 | 18.78 | 12.52 | 3.13 | 6.26 | 9.39 |
| Charleston | 65,1e5 | 43 | 16 | 4.66 | 4.66 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 29 | 13 | 6.90 | 10.35 | — | 6.90 | — |
| Fall River | 92,233 | 30 | 15 | 16.66 | 13.33 | — | 6.66 | 3.33 |
| Lowell | 90,613 | 31 | 8 | 6.45 | 9.69 | — | 3.22 | — |
| Cambridge | 79,607 | 22 | 6 | 13.65 | 9.10 | — | 9.10 | 4.55 |
| Lynn | 65,123 | 21 | — | 4.76 | 14.28 | — | 4.76 | — |
| Springfield | 50,284 | 16 | 3 | 25.00 | 12.50 | 12.50 | 12.50 | — |
| Lawrence | 49,900 | — | — | — | — | — | — | — |
| New Bedford | 47,141 | 16 | 11 | 12.50 | 6.25 | — | — | — |
| Holyoke | 43,348 | 12 | 7 | 25.00 | 50.00 | — | — | — |
| Brockton | 33,939 | 10 | 4 | 10.00 | — | — | 10.00 | — |
| Salem | 33,155 | 12 | 3 | 16.66 | 8.33 | — | — | 8.33 |
| Haverhill | 32,925 | 12 | 1 | — | 8.33 | — | — | — |
| Malden | 30,209 | 14 | 1 | 14.28 | — | 7.14 | 7.14 | — |
| Chelsea | 29,806 | 6 | 1 | 16.66 | 16.66 | — | 16.66 | — |
| Fitchburg | 29,383 | 5 | 1 | 20.00 | — | 20.00 | — | — |
| Newton | 28,837 | 3 | 0 | — | — | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 10 | 0 | 20.00 | — | — | — | — |
| Waltham | 22,058 | 8 | 3 | 12.50 | — | — | 12.50 | — |
| Quincy | 19,642 | — | — | — | — | — | — | — |
| Pittsfield | 18,862 | 2 | 0 | — | 50.00 | — | — | — |
| Everett | 16,585 | 5 | 2 | — | 20.00 | — | — | — |
| Northampton | 16,331 | 3 | 1 | — | 66.66 | — | — | — |
| Newburyport | 14,073 | 3 | 1 | — | 66.66 | — | — | — |
| Amesbury | 10,920 | 3 | 0 | — | — | — | — | — |

Deaths reported 2,186: under five years of age 631; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 318, acute lung diseases 341, consumption 273, diphtheria and croup 183, scarlet fever 38, typhoid fever 35, diarrheal diseases 29, whooping-cough 11, measles 9, erysipelas 4, malarial fever 4, small-pox 3, cerebro-spinal meningitis 2.

From diarrheal diseases New York 9, Philadelphia and Holyoke 3 each, Brooklyn, Cleveland, Pittsburgh, Fall River and New Bedford 2 each, Providence, Charleston, Lowell and Salem 1 each. From whooping-cough New York 8, Brooklyn 2, Philadelphia 1. From measles New York 5, Philadelphia, Brooklyn, Pittsburgh and Providence 1 each. From erysipelas New York 3, Boston 1. From malarial fever Brooklyn 2, New York and Charleston 1 each. From small-pox Philadelphia 2, Brooklyn 1. From cerebro-spinal meningitis New York and Boston 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,458,442, for the week ending December 22d, the death-rate was 18.2. Deaths reported 3,649; acute diseases of the respiratory organs (London) 325, measles 139, whooping-cough 70, diphtheria 60, fever 48, diarrhea 40, scarlet fever 32, small-pox (London, Birmingham and Liverpool 1 each) 3.

The death-rate ranged from 11.3 in Plymouth to 26.7 in Preston; Birmingham 18.0, Bradford 19.1, Croydon 14.0, Hull 19.4, Leeds 21.7, Leicester 14.9, Liverpool 22.6, London 17.4, Manchester 22.2, Newcastle-on-Tyne 18.3, Nottingham 15.6, Sheffield 16.5.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 29, 1894, TO JANUARY 4, 1895.

The leave of absence on surgeon's certificate of disability granted MAJOR WASHINGTON MATTHEWS, surgeon, is extended four months on surgeon's certificate of disability.

The order assigning CAPTAIN JAMES D. GLENNAN, assistant surgeon, to duty at Fort Snelling, Minnesota, is revoked.

The order assigning FIRST-LIEUT. HENRY A. SHAW, assistant surgeon, to duty at Fort Niobrara, Nebraska, upon the abandonment of Fort McKinney, Wyoming, is so amended as to direct him to report for temporary duty at Camp Merritt, Montana, and upon the completion thereof to proceed to Fort Snelling, Minnesota, for duty at that post.

Leave of absence for one month, on surgeon's certificate of disability, with permission to leave the limits of the Department is granted FIRST-LIEUT. JAMES M. KENNEDY, assistant surgeon.

Leave of absence for one month, to take effect about December 24, 1894, is granted MAJOR ROBERT H. WHITE, surgeon.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 5, 1895.

MICHAEL BRADLEY, medical director, detached from duty as a member of the Naval Examining and Medical Boards.

B. H. KIDDER, medical director, ordered as member of the Naval Examining and Medical Boards.

J. B. BARKER, surgeon, ordered to special duty in connection with the investigation of the Ford Theatre disaster.

LEWIS H. STONE, passed assistant surgeon, promoted from assistant surgeon.

F. J. B. CERDEIRO, passed assistant surgeon, ordered to study the subject and make a report to the Department of the therapeutic value of antitoxin in the treatment of diphtheria and croup.

## OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDING DECEMBER 31, 1894.

PURVIANCE, GEORGE, surgeon. Relieved from command of service at Philadelphia, Pa., and detailed as medical inspector of immigrants at that port. December 18, 1894.

MEAD, F. W., surgeon. Directed to proceed to New York, N. Y., for temporary duty. December 27, 1894. To rejoin station (Washington, D. C.). December 29, 1894.

CARTER, H. R., surgeon. Granted leave of absence for twenty-four days, in lieu of leave granted November 20, 1894. December 21, 1894.

PECKHAM, C. T., passed assistant surgeon. To inspect unserviceable property at San Francisco Marine-Hospital. December 26, 1894.

KALLOCH, P. C., passed assistant surgeon. To report at Bureau for special temporary duty. December 29, 1894.

BRATTON, W. D., passed assistant surgeon. Placed on "Waiting Orders," to date from January 1, 1895. December 26, 1894.

MAGRUDER, G. M., passed assistant surgeon. Granted leave of absence for ten days. December 22, 1894. Leave of absence extended five days. December 31, 1894.

PERRY, T. B., passed assistant surgeon. To proceed to New York, N. Y., for temporary duty. December 28, 1894.

COBB, J. O., passed assistant surgeon. Granted leave of absence for three days. December 28, 1894.

PERRY, J. C., passed assistant surgeon. To proceed to Philadelphia, Pa., and assume temporary command of Service. December 18, 1894.

NYDEGGER, J. A., assistant surgeon. Granted leave of absence for three days. December 18, 1894.

BLUE, RUPERT, assistant surgeon. To proceed to San Francisco, Cal., for duty. December 18, 1894. Granted leave of absence for six days. December 24, 1894. To proceed to Cincinnati, O., for temporary duty. December 28, 1894.

PROCHAZKA, EMIL, assistant surgeon. Granted leave of absence for twenty-five days. December 17, 1894.

CUMMING, H. S., assistant surgeon. Leave of absence granted, November 27, 1894. Cancelled. December 20, 1894. Granted leave of absence for seven days. December 31, 1894.

## JEFFERSON MEDICAL COLLEGE.

### CLASS OF 1879.

Many members of the *Class* of 1879 *Jefferson Medical College* of Philadelphia are desirous of having a class reunion on the occasion of the fifteenth anniversary of their graduation. Owing to changes, comparatively few addresses are known and therefore this means is resorted to, with the hope that every member of the class of 1879 who reads this notice will communicate at once with the class President, Dr. Philip R. Koons, Mechanicsburg, Cumberland County, Pennsylvania.

## HARVARD MEDICAL SCHOOL.

### EVENING LECTURES.

The next lecture will be given on Thursday evening, January 17th, at 8 o'clock, by Prof. H. C. Ernst. Subject, "Tuberculosis." Physicians are cordially invited.

## SOCIETY NOTICES.

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT. — The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place, on Wednesday evening, January 16th, at 8 o'clock.

Dr. G. G. Sears: "Remarks upon 200 Cases of Phthisis, Recently Seen."

Dr. F. H. Osgood: "Tuberculosis Among our Neat Cattle."

JOHN L. AMES, M.D., *Secretary*.

MASSACHUSETTS MEDICAL SOCIETY, MIDDLESEX SOUTH DISTRICT.— A meeting for medical improvement will be held at the Medical Library, 19 Boylston Place, Boston, Thursday, January 17, 1895, at 4 o'clock P. M.

Papers: "Causes of Sudden Death," Dr. T. M. Durrell. Discussion opened by Drs. F. W. Draper, W. D. Snow and J. A. Mead.

"Treatment of Diphtheria," Dr. F. G. Curtis. Discussion opened by Drs. J. L. Hildreth and E. R. Cutler.

Members of the Massachusetts Medical Society of other Districts cordially invited to be present.

ALBERT AUGUST, M.D., *Secretary*.

## RECENT DEATHS.

JONATHAN WHEELER BEMIS, M.D., M.M.S.S., died in Cambridge, January 6, 1895, aged eighty-four years.

DAVID WORTHINGTON MINOR, M.D., M.M.S.S., died in Ware, Mass., January 2, 1895, aged seventy-four years.

DR. WILLIAM GRAY DISBROW, a graduate of the class of 1857 in the Harvard Medical School, died at Dalhousie, New Brunswick, on December 12th. He was born in St. John in 1830.

MR. THOMAS LEACH, medical inspector, U. S. N. (retired), died at his home in Newmarket, N. H., December 30th, aged fifty-eight years eight months. Mr. Leach served on the *Monongahela* during the Rebellion.

## BOOKS AND PAMPHLETS RECEIVED.

The Fourteenth Annual Report of the New York State Board of Health. Two volumes and maps. Albany: Published by the State. 1894.

Transactions of the Colorado State Medical Society, Twenty-fourth Annual Convention, By-Laws and List of Members. Denver, June, 1894.

The Twenty-seventh Biennial Report of the Trustees, Superintendent and Treasurer of the Illinois Institution for the Education of the Deaf and Dumb at Jacksonville. Springfield, Ill. 1894.

Practical Uranalysis and Urinary Diagnosis; a Manual for the Use of Physicians, Surgeons and Students. By Charles W. Purdy, M.D., Queen's University, Professor of Urology and Urinary Diagnosis at the Chicago Post-Graduate Medical School, etc. With numerous illustrations, including photo engravings and colored plates. Philadelphia: The F. A. Davis Co. 1894.

# Original Articles.

## THE IMPORTANCE OF BACTERIOLOGICAL INVESTIGATIONS IN CASES OF DIPHTHERIA.[1]

BY J. H. McCOLLOM, M.D.

In September, 1893, a series of observations in cases of suspected diphtheria was commenced at the Bacteriological Laboratory of Harvard Medical School. From September, 1893, to October, 1894, 500 cases were examined, and of this number 133 proved to be diphtheria, or 26.6 per cent. These observations have been essentially different from any attempted, thus far, in this country; for they have been dealing not with the well-marked characteristic cases of diphtheria, but with the mild and doubtful cases in which a diagnosis is impossible without a bacteriological examination.

It is now generally conceded that the presence of the Klebs-Löffler bacillus is positive proof of the existence of diphtheria, and that persons in whose throats this organism is found are sources of danger to the community, and that they continue to be sources of danger so long as this organism continues to exist. Much has been said regarding the existence of the pseudo-diphtheria bacillus; and an attempt has been made by some observers to throw discredit upon the important discovery of Klebs and of Löffler. While it is perfectly possible that in certain rare instances a bacillus of a non-virulent type morphologically similar to the diphtheria bacillus may be found in persons with normal throats, still this occurrence is so exceptionally rare that it does not have any very important bearing on the accuracy of bacteriological diagnosis. It has also been claimed by some members of the profession that the inoculation of the tubes was extremely difficult, and that for this reason this method of diagnosis was not of practical use. In reply to this, it may be said that of the 800 tubes inoculated, there were only six cases in which there were no growths. This would seem a sufficient answer to the statement that this method of diagnosis is not of practical use. Any one who has had any experience in diphtheria knows perfectly well, that in a family of four or five children, one or two may have perfectly characteristic attacks of the disease, while the remaining children, without having any constitutional disturbance, without having any membrane in the throat, may have a slight seropurulent discharge from the nose which has nothing of itself characteristic of diphtheria, and in which a diagnosis of diphtheria could not possibly be made without a bacteriological examination. Many such cases have been examined during the past year, and in a large percentage of them diphtheria bacilli were found, the virulence of which was proved by their action on guinea-pigs. The occurrence of diphtheria during an attack of scarlet fever has been considerably overestimated by the profession. In these investigations 36 cases of scarlet fever in which there were marked throat symptoms were examined, and in nine of them diphtheria bacilli were found. The number of cases of measles, with marked throat symptoms, examined, is too small from which to form any satisfactory conclusions. In these investigations the average length of time in which the diphtheria bacillus was found present, has been $15\frac{1}{2}\frac{8}{9}$ days. In one instance the diphtheria bacillus was found to exist 72 days, but in this particular case it is a question whether or not there was a re-infection.

A short history of a few of the cases examined may be of interest.

In Case 15 the physician gives the following history: A boy, five years of age, complained of slight sore throat, and had a small white spot on one tonsil. The boy was not especially ill, and this small white patch on the tonsil disappeared in three days. A culture taken on the first day of the illness, however, contained large numbers of diphtheria bacilli.

Case 23 was that of a boy who had a slight discharge from the nose. There was absolutely no constitutional disturbance, but bacilli of diphtheria were found in the culture.

Case 35 was that of a young lady with a temperature of 104°, pulse 120, having had a chill at the onset of the disease; in fact, the case presented all the clinical appearances of an attack of follicular tonsillitis, but a bacteriological investigation proved the presence of the bacillus of diphtheria. As this case occurred in a family in which there were several small children, if the patient had not been promptly isolated, the results would have been disastrous. In this particular case, it is of interest to note that the bacilli remained in the throat for about four weeks, and also that they retained their virulence, which was proved by the inoculation of guinea-pigs.

Case 38 is of interest from the fact that although there was some redness of the fauces and marked constitutional disturbance, there was no membrane to be seen, but the patient died forty-eight hours after the culture was made in which the diphtheria bacillus was found, with the symptoms of laryngeal stenosis.

In Case 48 the patient had an undoubted attack of diphtheria a month before the cultures were made. At the time of the culture, although the patient was in comparatively good health, there was a slight nasal discharge from which the culture was made. The diphtheria bacillus was found; and in order to settle the question of the virulence or non-virulence of the bacillus, a guinea-pig was inoculated with about two cubic centimetres of a bouillon culture twenty-four hours old. The guinea-pig died at the end of twenty-four hours, and the autopsy showed marked edema of the internal organs. The bacilli of diphtheria were found at the point of inoculation.

The history of Case 51 is as follows: Mrs. B., age forty-seven, had diphtheria three times, the last time about twenty-eight years ago. On November 15th, returning home from a concert, where she perspired very freely, felt chilly, and on the next day had a slight attack of acute coryza, which on the following day was quite marked and accompanied by malaise, headache of a dull character, chiefly frontal, and there was also very slight pain on swallowing. On November 17th there was no membrane to be seen, nor was there any marked congestion of the throat. There was an indistinct swelling about the size of a bean at the angle of the jaw at the left side. On the right tonsil there was a suspicious-looking thin film, covering nearly the whole of the tonsil. On the left tonsil there were several minute points about the size of a pin's head. The film upon the right tonsil, to which allusion has been made, was easily removed. Temperature was 102°, pulse 96. In short, the history of this case and the appearance of the throat would seem to justify a diagnosis of follicular tonsillitis. Cultures,

[1] Read before the Boston Society for Medical Improvement, November 12, 1894.

however, made from this throat, showed the presence of the bacillus of diphtheria. In this case the bacilli continued in the throat for 19 days.

Case 64 is of interest from the fact that on the second day after exposure to diphtheria, before the appearance of any membrane and before there was any marked constitutional disturbance, bacilli of diphtheria were found. Forty-eight hours after the culture was made a membrane appeared.

Case 85 is that of a child eight years old, who had no membrane in her throat, but the culture was taken from a follicular plug. Bacilli of diphtheria were found. The child died eight days after the culture was taken, of laryngeal stenosis, intubation having been performed for the relief of this symptom three days previous.

Cases 88, 89, 90 and 91 are of interest from the fact that the local symptoms were very mild. Diphtheria bacilli were found, and the subsequent history of the cases justified the bacteriological diagnosis of diphtheria.

Case 109 is of interest from the fact that there was a very slight amount of membrane in the throat, and no constitutional disturbance. Bacilli of diphtheria were found in the culture, and disappeared at the end of two weeks.

In Case 116 a soft, yellow membrane, covering the whole of the left tonsil, friable on the surface but adherent at the base, was seen. Temperature 101°, constitutional disturbance moderate. The bacillus of diphtheria was found in the culture.

Case 119 was that of a girl four years old, who had very slight constitutional disturbance. In this case the diphtheria bacillus continued for about two weeks.

Case 128 is that of a young man who had a mild attack of sore throat, who was not ill, but who was in a situation where he must have communicated diphtheria to many people, if the disease had not been recognized by means of a bacteriological examination. The virulence of the bacillus was demonstrated, in this case, by its effect on guinea-pigs.

Case 135 is that of a child who had no throat symptoms, but did have a slight muco-purulent discharge from the nose. A culture taken from the throat was negative. A culture taken from the nose, however, was almost a pure culture of the diphtheria bacillus. In this case the child was not ill. He would have been a source of great danger if he had not been isolated.

Case 138 is worthy of mention because, although there was a slight membrane in the throat, this membrane did not present to the eye the characteristic appearance of a diphtheritic membrane. A culture, however, made from this throat revealed the presence of the diphtheria bacillus.

Case 147 is that of an extremely mild case of sore throat, in which a positive diagnosis without a bacteriological investigation was impossible. Cultures from the throat revealed the diphtheria bacillus.

Case 156. E. R., two and one-half years of age, had a slight sore throat, and also had a suspicious-looking membrane on the arm at the site of a recent vaccination. Very little constitutional disturbance. No membrane in the throat. Cultures made from the throat contained no bacilli; but the culture made from this suspicious-looking place on the arm contained the bacilli of diphtheria.

Case 171 is that of a boy four years of age, in whose throat, twenty-four hours after removal of the tonsils, a membrane appeared; and it became a matter of great importance to decide upon the nature of this membrane. Cultures taken from it proved that it was not of a diphtheritic nature.

Case 180 is a case of purely nasal diphtheria, no membrane having been seen at any time in the throat. There was a profuse nasal discharge, from which almost a pure culture of the diphtheria bacillus was made.

The history of Case 182 has a typical clinical history of acute follicular tonsillitis. Five or six small spots were seen in the throat, but no extensive membrane was found. A culture, however, from this throat contained the diphtheria bacillus.

Cases 202 and 204 are of interest as illustrating the point that diphtheria can be diagnosed by bacteriological investigations before the appearance of any membrane or before there is much constitutional disturbance. In these two cases, as it was known that the patients, adult women, had been exposed to diphtheria, cultures were made from their throats, and the presence of the diphtheria bacillus detected forty-eight hours before the appearance of any membrane.

Case 267 illustrates the importance of a bacteriological investigation where there is a profuse nasal discharge without any constitutional disturbance.

It is unnecessary, however, to cite any more cases.

One very important and interesting point showing the value of a bacteriological examination in cases of diphtheria is the history of 18 cases of nasal diphtheria in which there was very little constitutional disturbance, and in which there was no membrane to be seen. Without a bacteriological examination these cases could not have been recognized as diphtheria. Cultures, however, made from the nasal discharge, proved the presence of the diphtheria bacillus, the virulence of which was tested by its effect upon guinea-pigs.

The following quotation from the report of Dr. W. H. Park, Inspector of Diphtheria to the New York Board of Health of New York City, illustrates the importance of cultures in all cases of a profuse nasal discharge in children. He says:

"A child was admitted into a hospital ward in an anemic condition and with a chronic coryza. Five days later four children in his neighborhood developed diphtheria. Two of these died. In seeking the cause of the diphtheria, suspicion was directed to the child by a slight nasal discharge. Bacteriological examination showed this secretion contained many diphtheria bacilli. On further examination it was found that the child came from a family in which, three weeks before, there had been a case of diphtheria.

"In a family of eight children one child sickened with diphtheria, and a second child, a baby, was sent to a neighbor. The next day cultures showed this baby, as well as two of the other children, all of whom were apparently healthy, were infected with diphtheria bacilli. The three apparently healthy but infected children, as well as the sick one, were at once quarantined, but already one of the family to which the baby had been sent had contracted diphtheria from it."

The cultures from 70 non-diphtheritic throats were examined in order to investigate as to the frequency of the, so-called, pseudo-diphtheria bacillus. Seventeen of the patients were suffering from chronic

diseases of the throat, 15 from uterine disease and the remainder from surgical and medical diseases. In no instance was an organism found that would be likely after a careful examination to be mistaken for the diphtheria bacillus. In these investigations a certain number of bacilli were found, but they were either long slender bacilli, or short stout ones, having no morphological resemblance to the diphtheria bacillus.

In a "Report of the Present State of Knowledge respecting the Etiology and Prevention of Diphtheria," presented on behalf of the English Committee to the Eighth International Congress of Hygiene and Demography at Buda-Pesth, Edward Seaton, M.D., F.R.C.P., says:

"Finally, it must be said that progress in medical preventive work generally (which must obviously include experimental research work) is retarded in a considerable degree by the popular or general conception of the scope of 'hygiene.' This in England has come to have far too narrow a signification. The term hygiene is almost always used to apply to structural works (for example, water-supply and drainage), materials, etc., which, however important they may be as necessary for the prevention of some (so-called) preventable diseases, are apparently useless for the prevention of others, which are also entitled to be called preventable. It will be impossible to combat diphtheria, influenza and other diseases which can only be properly termed preventable when the public and governments understand the necessity for the systematic encouragement of scientific observation and research bearing on the public health, and the furtherance of medical preventive work generally."

In a "Report on the Etiology and Prevention of Diphtheria," presented on behalf of the German Committee to the Eighth International Congress of Hygiene and Demography at Buda-Pesth, F. Löffler, M.D., says:

"(1) The productive agent of diphtheria is the diphtheria bacillus. Dispute as to the etiological definition of this bacillus exists no longer. We can, therefore, henceforth indicate as diphtheria such forms of disease as are infested with the bacillus.

"(2) Not infrequently cases appear in the early stages to the clinical observer as true diphtheria, which, however, are caused by other organisms, as streptococci, staphylococci, pneumococci, and in light or graver form may be mistaken for diphtheria. But the differential diagnosis can be effected through bacteriological research. Statistical compilation on the epidemic spread of diphtheria, as well as on the character of diphtheritic epidemics, cannot represent an exact definition so long as the bacteriological investigation of cases suspected of diphtheria fails to mark a division between true diphtheria bacillus and cases merely resembling diphtheria.

"(3) Diphtheria epidemics show a various character, as do many other epidemics of infectious disease. The course of the epidemics is often very light, but also much more severe, indicated by the high figure of the death-rate, the rapid infection of the larynx and the nose, and by severe heart and kidney affections, and consecutive paralyses. But also in the same epidemic instances of severe and light forms of disease frequently alternate irregularly.

"(4) The variation, of course, will be determined by several factors: (*a*) By difference in the number and the virulence of the diphtheria bacilli; the causes of the latter are not yet absolutely known. (*b*) By concomitant bacteria, and indeed as much by pathogenic as saprophytic. The processes of infection with regard to the diseased mucous membranes in the passages and in the nose appear to influence the course of the disease unfavorably, in part by increasing the virulence of the bacilli, in part by weakening the body through absorption of decomposition product. (*c*) By individual tendencies not yet thoroughly recognized.

"(5) The diphtheria bacilli can appear in the passages, especially of the nose, of separate individuals without causing indications of sickness, which it first induces when it has actually established itself. Lesions of the mucous membranes, small eruptions, catarrhal changes, are favorable to its residence. In brief, meteorological conditions giving admission by the first approach to catarrh (especially cold, damp weather), appear to favor the sickening from this cause. But this influence has to be more closely observed.

"(6) Diphtheria is most rapidly communicated by direct contact between sick and well, through spitting, coughing, sneezing, kissing, and grasping of the hands, whereby the hands come into contact with flesh secretion; also freely through utensils which the sufferer has fouled with his secretions; by beverages, food, eating and drinking vessels, cast-off washing clothes and other articles, as pocket-handkerchiefs, playthings, even long after their actual infection.

"(7) The sick is infectious so long as he has bacilli upon the mucous membranes. The bacilli usually disappear with, or soon after the disappearance of the local signs, but they may be detected still lively and virulent in the passages or nose for weeks and even months.

"(8) On inorganic matters condensed and excluded from light the bacilli can maintain themselves for a period of months; accumulations of dirt, dark and close dwellings favor thus the preservation of bacilli and the extension of disease.

"(9) As a specially noticeable vehicle for the extension of disease is to be noted, the crowding together of susceptible individuals, especially in families of many children. But other gatherings of people, apart from children, where separate persons do not come into such proximity as the members of a family, may offer facility for the extension of infection, as schools, barracks and the like.

"(10) The diphtheria bacillus is so far not identified with certainty as the cause of other diseases similar to diphtheria or of other spontaneous disease of lower animals. The possibility of the conveyance of true diphtheria from sick animals to human beings is thus outside our present knowledge. It is desirable that the governmental investigating committee should combine with research regarding diphtheria coming under their notice the similar diseases of animals, and also the communication from animal to human beings of diseases resembling diphtheria.

"(11) As prophylactic means are to be considered: (*a*) Care for cleansing, keeping dry, sufficient ventilation and lighting of the dwelling; (*b*) careful cleansing of the mouth and nose, gargling with weak solutions of common salt and carbonate of soda, thorough brushing of the teeth, extraction of bad teeth, attention to the deeper cavities of the tonsils, and removal

of hypertrophied tonsils; (*c*) cold douching of the throat in times of diphtheria prevalence.

"(12) Every case suspected as diphtheria must, when possible, be bacteriologically investigated. The physicians must have easy access to the required materials for carrying on the culture, for example, in the chemists' shops. The investigation has to be carried on by specialists, as in the case or cases of suspected cholera.

"(13) All cases proved bacteriologically to be true diphtheria, as well as all cases suspected as diphtheria which have not been bacteriologically investigated, must be dealt with under police regulations.

"(14) Every diphtheria case must be isolated, either in a separate room of the dwelling or in an isolation ward. In order to restrict as much as possible the spread of the bacilli by the sick, a local anti-bacillar treatment must be employed with a view to prophylaxis against the early stages of the disease.

"(15) One of the most effective means against the spread of diphtheria is the protective inoculation, with antitoxin, of susceptible individuals in the neighborhood of the patient, especially of children.

"(16) In every case of diphtheria, disinfection is imperative. This is needed for all utensils for the sick, as well as for the sick themselves and the sick-room.

"(17) Convalescents from diphtheria must not mix freely with others, till bacteriological investigation has proved the absence of the bacilli."

Dr. William H. Welsh, in a paper entitled "Bacteriological Investigation of Diphtheria in the United States," read at the Eighth International Congress of Hygiene and Demography, held at Buda-Pesth in September, 1894, says, "In 752 cases of diphtheria in New York the diphtheria bacilli disappeared within three days after the complete disappearance of the exudate." He also says, and this is a very important point: "A bacillus in no way distinguishable in morphology or in culture, including the formation of acid in bouillon, from the usual diphtheria bacillus, but devoid of virulence, exists. The virulence was tested by injecting into half-grown guinea-pigs one-half to one per cent. of their weight of forty-eight-hour bouillon cultures. This bacillus, although it has been called by some investigators the pseudo-diphtheria bacillus, should not be so designated. It is the genuine diphtheria bacillus devoid of virulence. It was met with in a comparatively small number of cases, out of a large number examined.

"Exceptionally it may occur together with the virulent diphtheria bacillus in diphtheria, and occasionally it takes the place of the virulent bacillus during or after recovery from diphtheria. In several instances it was found in healthy throats. The name pseudo-diphtheria bacillus should be confined to bacilli which, although resembling the diphtheria bacillus, differ from it not only by absence of virulence, but also by cultural peculiarities, the most important of the latter being greater luxuriance of growth on agar and the preservation of the alkaline reaction of bouillon cultures. The pseudo-diphtheria bacillus may render bouillon cultures acid in forty-eight hours when grown anaërobically. The pseudo-diphtheria bacillus in this sense was found in a number of cases, but not frequently. It is probably of different species from the genuine diphtheria bacillus, and is without diagnostic importance."

So far, there have been no investigations to prove that this non-virulent form may not, under suitable conditions, become extremely virulent; and until this point is firmly established it is the part of wisdom to consider this non-virulent form as a probable source of danger.

From the opinion of the authors quoted, and from the results of the 500 cases of suspected diphtheria investigated at the Bacteriological Laboratory, it is evident, that, to accomplish anything in diminishing the frequency of this disease, it is of paramount importance —

First, That in suspected cases of sore throat, or in cases where there is a profuse nasal discharge, a bacteriological investigation should be made.

Second, That in any case of diphtheria the patient should not be removed from isolation until there have been two negative cultures from the throat and from the nose.

Third, That the pseudo-diphtheria bacillus, so called, is not insufficiently frequent to cause any great error in diagnosis.

## REMARKS ON DIPHTHERIA.[1]

BY H. C. ERNST, M.D.

BEFORE there can be had a proper appreciation of the work that is to be presented here this evening, there must be a statement of facts in regard to diphtheria that are now too well supported by experimental evidence to permit any hesitation in their acceptance. There have been certain points in regard to this disease that have been well known for some time, points that later evidence has but brought more distinctly into view. The first and most important, the one that had to be first determined in order to any further intelligent study of the disease, was its cause; and this has been known for years to be a specific bacillus, commonly given the hybrid name of Klebs-Löffler, but properly called the bacillus of diphtheria. Seen first by Klebs in diphtheritic processes in 1883, isolated and described by Löffler in 1884, this peculiar and specific micro-organism has been the subject of many painstaking researches since that time; and the results that have come from these researches have been but confirmatory of the claims first made for it — that it is the actual cause of the process with which it is associated, and that without its presence diphtheria does not exist. This much has been settled for some time; so much so, in fact, that more than two years ago, in writing an article upon diphtheria, I had no hesitation in making the statement that doubtful cases of the disease could only be determined by means of the cultural diagnosis. This opinion was held by others engaged in similar lines of work; but in the study of the subject and of the best cultural characteristics by which this bacillus might be most easily and definitely separated from others similar to it, certain elements of confusion seemed to arise that threatened to obscure the desired precision of results.

The first of these was the presence, recognized by Löffler himself, of the so-called "pseudo-diphtheritic bacillus," a bacterium possessing apparently precisely similar characteristics to the true bacillus of diphtheria, with the extremely important exception that it manifested no pathogenic properties upon inoculation into

[1] Read before the Boston Society for Medical Improvement, November 12, 1894.

guinea-pigs. Evidently this is a crucial point; for any weight that might be attached to a bacteriological diagnosis of diphtheria would be small, if there were any probability that confusion could arise from such a source. For if one were likely to find a harmless bacillus in healthy throats that could not be distinguished from the true bacillus of diphtheria, except by the long process of culture and then of inoculation, the diagnosis of diphtheria by this means would be useless because of the long time it would take. All the best investigations, however, tend to confirm the opinion advanced soon after its first isolation, that the so-called "pseudo-diphtheria bacillus" is not a separate and distinct variety, but that it is merely a non-virulent condition of the true diphtheria bacillus. In any case, whether this be so or not, its occurrence is not nearly as frequent as has been supposed; and as a factor in confusing the bacteriological diagnosis of diphtheria it may safely be neglected, as the evidence to be presented later will show.

Another point that has been urged against the cultural diagnosis of diphtheria is that there are many anginas that are like diphtheria in their clinical course, and that the worst of these are often more severe than the milder forms of diphtheria; they are also undoubtedly infectious in their nature. So, it has been said, what difference does it make whether these processes are produced by the bacillus of diphtheria, or a virulent streptococcus or micrococcus? Of course, the simple statement of such an objection should be its own best refutation; but if that is not enough, it should be recognized that an exact etiology is the foundation of all rational medicine, and in this particular instance that it is of the utmost importance, as the work with the antitoxin of diphtheria shows. For here it makes no difference if the clinical symptoms are exactly the same, the antitoxin is valuable *only* in diphtheria, and is negative or positively hurtful in non-diphtheritic processes. The etiology of those processes similar to diphtheria is a problem aside from that of diphtheria; in this latter we are concerned with the diphtheria bacillus only, and we must determine its presence by the only means known to us.

These two points, then, appeared to be settled, that diphtheria is produced by the diphtheria bacillus, and that examination by culture is the only means of determining whether a given process is the result of its activity or not.

This being true, cumulative evidence was one thing that could be furnished by such an investigation as has been carried on by Dr. McCollom; but other, and, under the circumstances, perhaps more important points were to be determined as well.

Up to the time of the beginning of this research, practically all of the work done upon diphtheria had been carried on in hospital wards, and upon cases that were sufficiently severe to be sent to an institution for treatment. Certainly, in this community, this means that very little information could be gained from these cases in regard to the milder forms of the disease; for the rich do not send their cases to the hospital at all, and the poor do not, until the threatening symptoms force them to take the step. This being so, it was evident that if an attempt were to be made to study *mild* cases of the disease, material must be sought out of the hospital wards. For practical purposes, evidence upon these mild cases was needed; for it was necessary to demonstrate the fact that many apparently mild sore throats occur which are as truly diphtheria as are the most malignant and fatal ones, and that these mild, oftentimes unsuspected, diphtherias may easily be the source from which other and much more malignant and even fatal cases may arise.

To gather information of this kind, one is obliged to turn to the profession at large, for very few, if any, medical men see in their own practice sufficient material of the kind needed to be of value for evidence of this sort. This was done by publishing, a little over a year ago, a letter in the *Boston Medical and Surgical Journal*, stating that information was desired upon this point, and that material would be furnished, instructions given, and cultures made at the laboratory at the Medical School. The response to this letter has been very large, and up to the date of this meeting, there have been submitted for cultural examination almost eight hundred specimens. Most of the work upon these has been completed by Dr. McCollom in person, with, however, valuable assistance from Dr. Burr in obtaining nutrient-materials and completing the examinations when Dr. McCollom's other duties called him away, especially at the time of the smallpox epidemic last winter.

It was thought best, in the beginning, to use the platinum needle rather than the cotton "swab" for securing the material, and to have the nutrient-media inoculated at the bedside; and our experience has amply confirmed the wisdom of the choice. The method is a little more troublesome in the first instance, but the results are more accurate and satisfactory in every way. In the first place, the chances of an excess of material being taken up are diminished, and in the second, the material is at once spread out along the three tracks of the needle, so that an approximation to a plate-culture is obtained, and thus the chances of obscuring the colonies of the diphtheria bacillus by overgrowth are diminished. The main objection to the use of the platinum needle sunk in a glass-rod is the liability of the latter to fracture; but this fault has been done away with by using a metal handle for the platinum wire.

No word of praise is too great for the manner in which Dr. McCollom has carried out the details of the work, which certainly would not have been completed without his persistency and devotion.

## TWO CASES OF SUDDEN DEATH IN CHILDBED.[1]

BY H. W. BROUGHTON, M.D.

I am led to report these cases, first, because they are *fatal* cases. I believe that just such should be recorded, even at the risk of exposing one's errors in diagnosis and treatment, if such exist. Secondly, I report them because of their rarity, for fortunately sudden death in childbed is rare. Moreover, both of these cases present certain features that are more or less unique, at least as far as I have been able to discover after perusing a number of published reports. This is especially true of the second case. Finally, it is a privilege that I appreciate, to be able to address such a Society as this, and to feel that my deficiences will be criticised in a kindly spirit. I am frank to say that I bespeak your forbearance, especially with regard to the first case. This was one of the earlier cases of

[1] Read, by invitation, before the Obstetrical Society of Boston, November 10, 1894.

my medical career, and I wish it had fallen into abler hands than mine were at that time. In fifteen years practice these are the only fatal obstetric cases that I have attended, although I have seen several others in the care of other physicians.

CASE I. Uremic poisoning, with ante-partum concealed hemorrhage, post-partum hemorrhage, eclampsia; death.

Mrs. S., age forty, born in Cambridge. Her mother died at sixty-six of "Bright's Disease"; v-para; several still-born. The mother was very "full blooded," and always before her labors had a tendency to "convulsions," which was relieved by "bleeding." Patient unusually well; married at twenty-two. Had in succession four living children, and then six miscarriages — some at eighth month, others early, at second and third. No known cause for miscarriages. There was no evidence of syphilis. I attended her in the last two. Convalescence was slow, and anemia persisted. She was a woman of large frame, muscles soft and flabby.

Her last pregnancy was uneventful, except that she was anemic and debilitated. At term I was sent for at 10 A. M., and found her in pain. Pain was rather constant, low in front and back, not severe. She was flowing slightly. Blood appeared watery and thin. Although the membranes were firm and unruptured, the os was dilated to the size of a silver dollar, with thick edges. Head could be felt presenting. In two hours I saw her again. She appeared quite pale and weak, and felt somewhat faint. Os fully dilated, membranes still unruptured. A small amount of thin, bloody fluid had continued to flow, and there were two or three clots in the vagina as large as my fist. Suspicious of trouble, I ruptured the membranes, meanwhile giving stimulants by mouth. The head at once engaged; pains became intermittent and natural; and aided by firm pressure over the fundus, a small child was expelled with celerity. The baby was dead, face purple, epidermis easily detached; had evidently been dead for a considerable time. The placenta was at once expressed, accompanied by three or four large clots, each the size of my two fists, and some fluid blood, which was thin and watery. The placenta was very small, friable and more or less degenerated. Uterus contracted well. Ergot was given, and brandy subcutaneously. Patient was very weak, faint and pale, with weak pulse. Heaters were applied, and the head lowered. Brandy and carbonate of ammonia were again given subcutaneously. She gradually rallied, became warmer, and felt a little better. Took nourishment well; pulse improved. Several hours later there was a sudden, single, quite profuse gush of blood, which was immediately controlled by the nurse, who applied pressure over the fundus, and gave ergot. The flow was sufficient to drench napkins and sheets. At 10 P. M. patient complained of great weakness and faintness; body a little warmer. Nurse reported that napkin was wet with urine, but that none could be saved. The only urine that I saw was just before delivery; this was dark-colored, but mixed with discharges, and unfit for examination.

Brandy and ammonia were freely given, subcutaneously and by mouth, with nourishment. Pulse continued weak. There was no edema of face or ankles at this time, and I considered the case one of shock from the hemorrhage, ante-partum and post-partum. The very thin, fluid character of the blood I have already mentioned. I remained through the night. In the morning she was still pale and weak; but there was a little more color about the lips, and she said that she "felt better and stronger." As I concluded afterwards, I believe that at this time there was a slight puffiness about the eyes, but it did not impress me then. The flowing was very slight, consisting of a thin, watery discharge. I left her for a time, feeling that she had rallied sufficiently to justify some hope. At noon I saw her again, and was shocked at the change. The face was very greatly swollen, especially about the eyes and cheeks. The nurse noticed the swelling about 10 A. M., but did not know its import. The bladder was empty. No urine had been passed since the night before. The patient said, "Why do I feel so very weak." She complained of a "choking" sensation in the throat and at the pit of the stomach, which she thought was "wind." The extremities were cold. She asked the nurse to arrange the pillows a little, when suddenly she became ashy pale, and there were marked convulsive movements of the whole face, which lasted for a moment, when she ceased breathing, twenty-four hours after delivery. Body not convulsed at all.

CASE II. Placenta previa, with concealed hemorrhage; death.

Mrs. K. was a reasonably healthy, young German woman, thirty-one years old, of healthy stock. During the past five years she had had four children, and was now pregnant with the fifth since the last of March, 1894. I attended her in three previous labors. They were normal, and she made fair convalescence. In this last pregnancy she failed to notify me of her condition, as she had always done, and had no medical advice. This was unfortunate, for she was not at all well, complaining much of debility, and looking poorly, as her friends report. She "felt life" at the usual time. Fetal movements continued until within two weeks of her last illness, which occurred September 24, 1894, at about the sixth month of pregnancy. This was on Monday. On the Thursday previous she took a long walk, and on Sunday walked to church, and was hardly able to get home, from exhaustion. Sunday night, on "taking off her corsets," she felt pain in the lower part of her abdomen. It felt "as if everything were dropping out." Abdomen "very hard and large." She vomited once or twice. Thought her trouble might be due to "pears" that she had eaten. Pain was continuous all night, although "not very severe." During Monday morning the pain continued, and was a little worse. She could not stir in bed. But they were not alarmed; the husband went to his work. Neither nurse nor physician was notified. She vomited again Monday A. M. About 1 P. M. the pain became much worse; described as a "steady, constant" pain, agonizing in character. She said that she "never suffered so much with all her children." I was called to attend her, and saw her about 2 P. M. The nurse who preceded me by a quarter of an hour, said that she "looked very sick"; with cold extremities "way up to elbows and knees"; ears were "purple" and feet "prickly." Nurse thought that she was going to "have a convulsion." I found the patient in great distress, looking very pale, and with an agonized expression. Pulse weak and quick. Still I have seen the same picture in simple miscarriage. There was nothing objectively to positively alarm one. But her abdomen was hard and tender. She could

hardly move upon the bed, and she complained of a "constant pressing" pain in her back and through the uterine region. This aroused suspicion. There was a slight flow. Os was found to be hard and rigid, admitting only the tip of my finger. I at once etherized, and proceeded to dilate and empty the uterus as soon as possible. I sent for assistance; and soon Dr. J. C. Stedman arrived and gave me, through this most trying case, valuable help. A vaginal antiseptic douche was given (1–3,000 bichloride), and dilatation begun. It was no easy matter to introduce my forefinger through the os; but in time I succeeded. It was grasped firmly by the cervix. Slowly I got the second finger in, when I thought I felt the placenta previa, immediately over the os. I mentioned this to Dr. Stedman. Dark, venous blood now began to flow around my fingers. With three fingers introduced, I could distinctly feel the placental tissue. Blood was flowing freely, dark in color. At length, after fifteen or twenty minutes, I got my whole hand in. The placenta was found to be distinctly previa, lying right over the internal os. It was small and wholly detached, lying loose in the uterine cavity, with a bag of membranes, and a mass of clots above. I pushed through the mass of placenta, clots and membranes, and for a moment the child eluded my search. But I soon found it, lying transversely at the very fundus. I seized a foot, and extracted it promptly, without difficulty. It was ten inches long, and dead, of a dark-blue color. The placenta, and a hatful of clots and fluid blood — perhaps two quarts, followed. The uterus was immediately washed out with hot vinegar and then with bichloride solution (1–5,000). It contracted at once The woman was nearly collapsed, but came out of her ether. In the next half-hour we administered six subcutaneous injections of whiskey, in one drachm doses; ten minims of tincture of digitalis subcutaneously; and two injections of carbonate of ammonia, five grains each, and also one-sixtieth of a grain of strychnia; all subcutaneously. By mouth, one drachm of ergot, whiskey and water freely, coffee strong. Also whiskey and water by rectum. Heaters were applied everywhere about her. Her head was lowered, and the foot of the bed raised. Her hands and limbs were chafed. We fanned her. But all to no avail. She died in half an hour after delivery, from shock and loss of blood.

In briefly reviewing these cases I will simply allude to some of the salient points. In Case I we have a patient whose mother's puerperal career was not without significance, she having had several still-born children, and undergoing venesection before delivery to avert anticipated eclampsia. The patient herself was exhausted by a long series of miscarriages, and late in life, at forty, became pregnant. Nothing is known of the state of her kidneys before delivery; but her urine may have been albuminous, and uremia may have occasioned the death of the child, which had evidently been dead for some time. The hydremic condition of the blood, as evident to the eye, would perhaps strengthen this view. Labor was ushered in not by the normal intermittent uterine contractions, but with a steady, though not severe pain, and with increasing pallor, faintness and debility. Clots were also found in the vagina, which signs are somewhat tardily recognized as diagnostic of concealed hemorrhage. The membranes were ruptured, and the child quickly escaped under the influence of normal pains assisted by pressure over the fundus. This was followed by large clots, and considerable fluid blood and a small degenerated placenta. The patient was in semi-collapse, but rallied a little under free stimulation, when she was again reduced by a profuse gush of blood escaping from the uterus, several hours after delivery. She again slowly rallied through the night, and appeared in the morning, perceptibly though slightly, improved in strength and general condition. Slight edema of face may have been present at this time, but was not observed. By 10 A. M. the nurse noticed that her face was distinctly swollen; and at noon, when I saw her, the edema was extreme. The bladder was found to be empty, a small amount of urine having been passed only once since delivery. Suddenly she complained of weakness and faintness, and her face became ashy pale; she had a slight though distinct convulsion, involving the muscles of the face, and lasting for a moment, when respiration ceased, and she was dead — twenty-four hours after delivery.

With regard to the diagnosis of this case, I should be glad for your judgment. It has seemed to me most probable that uremia was the underlying pathological condition, for the following reasons: The anemic and enfeebled condition of the patient predisposed to it. The dead child, without other known cause, the concealed hemorrhage, the hydremic condition of the blood, the almost complete suppression of the urine after delivery, and finally the edema, with the slight eclamptic attack at the end, all seemed to me to point clearly in that direction. Of course, it is perfectly possible that the death of the child, and the concealed hemorrhage may have come from other causes, and the uremia developed after the birth of the child. As I have said, the other hypothesis seems perhaps the more tenable.

As to the management of the case, it was unfortunate that the patient was not watched during the pregnancy, and the urine examined from time to time. I have most scrupulously since that case, for years, advised that patients report their pregnant condition very early, and send urine for examination, at least once a month. The concealed hemorrhage ought to have been ***suspected*** at least, at the first visit. The absence or diminution in the amount of urine after delivery ought to have been ascertained earlier. Here I was deceived by the statement of the nurse, who reported the napkin wet with urine.

In Case II a healthy young German woman was reduced by five pregnancies in five years. During the last one she was more debilitated than usual, but failed to put herself early under medical care, as she had wisely done in her previous pregnancies. Two weeks before her last illness fetal movements ceased, and at the sixth month, after being utterly fatigued by a long walk, she was seized at bedtime with a steady, persistent pain, and a slight flow and vomiting. She was not seen by a physician until the afternoon of the next day, when she was found in great distress from a concealed hemorrhage. The os was rigid; but it was thought wise to ignore the risk of laceration and to rapidly dilate under ether. This was accomplished with difficulty, and the placenta found to be entirely previa, free and wholly detached. The uterus was promptly emptied of perhaps two quarts of clotted and fluid blood, with the fetus and placenta. The woman came out of her ether, but was in collapse and died in half an hour in spite of stimulation.

I have been at a loss just how to class this case. It was evidently a placenta previa; but the concealed hemorrhage seems to me a very unusual feature. It can hardly be spoken of as an "accidental concealed hemorrhage," as that latter condition seems to be defined as the result of the separation of a normally implanted placenta. Moreover, I have supposed that the term "unavoidable hemorrhage" was applied to the ordinary external hemorrhage of placenta previa. In one sense this was accidental; at least it does not seem to have been caused by uterine contractions, and dilatation of the os. The complete detachment of the placenta seems to me another remarkable feature.

As to the treatment adopted, it seemed to me the only course to pursue in spite of the danger of laceration, and rupture of the uterus. If there *are* any cases of concealed hemorrhage where delay is justifiable this did not seem to my mind to be one. There were two measures that I did not apply to the state of collapse. I allude first to the use of electricity, and second to the subcutaneous injection of a warm saline solution. As to electricity, it may, I suppose, be of service; but the difficulty is that one's battery is never at hand. As to the use of a saline injection, I should be glad for an opinion. I wish I had tried it, although I read of several cases where it was of no avail.

## RAPE.[1]

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(Concluded from No. 2, p. 31.)

To consider fully the evidences of rape, it would be necessary to review the normal anatomy of the female genital organs with which I will assume you to be familiar. It is well, however, to bear in mind the various ways that a hymen may appear. Tardieu in his "Attentats aux Mœurs," has collected quite a variety of forms, remarking that there is no universal type. He shows the hymen closed, having a narrow slit, diaphragm with upper opening, diaphragm with central opening, semilunar, annular with irregular edges, with punctate orifice, with double orifice, with double bilateral orifices, with double unequal orifices, with central orifice and two upper parts terminating in a cul-de-sac. Anatomical conditions may be a source of error. Dalbeau describes a vulvar canal just about the fourchette ascribed to indecent assault by a penis too large in a vagina the size of a penholder; Brouardel says perhaps this was true in the case referred to, but such a malformation runs in families, and cites cases to prove his statement. The absence of hymen in an unmarried female is no proof of rape, since it may have been congenitally absent, may have ulcerated away from irritating discharge or scrofulous disease, been destroyed in treatment of vaginal discharge or in medical examination; been destroyed by the female herself or removed by some one else according to her will and with her consent. The presence of the hymen, on the other hand, is no sure proof of virginity, nor that rape has not been committed. It has already been stated that a rape can be committed without the penis reaching the hymen — moreover a woman whom I saw professionally had been married thirteen years to a potent husband and had an unbroken hymen muscular in tissue and guarded by vaginismus; she might have been raped every week, and yet furnished good evidence for the defence. A hymen has been known to persist until the *second* delivery, as stated by Stolz in the *Annales d' Hygiène*, 1873. "Virgines intactæ"!! have frequently required the assistance of accoucheurs and in due time have been delivered of children.

The most important duty that falls to the hand of the physician in a case of alleged rape is the examination of stains which may be seminal.

Suspicious articles received by him should have been sealed and marked for identification. His first duty is to note the time received and the condition of the seal. Having further marked them for his own identification, they should not go out of his direct control until produced, if necessary, in court.

A seminal stain may be simple or mixed with blood, animal fluids or extraneous matter as vaginal mucus, feces, urine, etc.: its color is a shade of gray or yellow, the albuminous matter causes a stiffened feel, the outline is irregular. If fresh, a characteristic odor is present; this is often brought out by moistening and slightly heating, even when the stain is old, and naturally then without odor. The color is best brought out by transmitted light, or, in my experience, by holding the stain a little below the level of the eye in a strong, direct light that thus falls upon it at an angle. This color is more of a gray-brown than the stain of albumen, becoming if the stain is warmed, a characteristic pale-yellow.

There are no reliable chemical tests of the stain. If there is doubt whether the stain be simply albuminous or seminal, Lassaigne recommends that it be moistened with a solution of lead oxide in liq. potassæ at 68° F. when, if albuminous, that is, if it contains sulphur, it turns yellow; while if seminal no change occurs, unless, as sometimes happens, the semen be diluted with an albuminous secretion. Pure seminal stains give no blue reaction with the guiacum test. These tests are only of value on clean, white material. Tidy says to determine if a given stain be seminal, digest it in a watch-glass with a few drops of water for about ten minutes; then place the glass in a good light on a piece of white paper, and add to the solution one drop of nitric acid on a glass rod. If seminal the stain will turn yellow, but there will be no precipitate.

To prepare the stain for microscopic examination, the method advised by C. Robin in the *Annales d' Hygiène*, 1857," and endorsed by Tardieu, is as follows: "A portion of stained cloth is soaked in distilled water feebly alkaline at the ordinary temperature, by holding it by an unstained portion allowing the stain to be in the water. Capillary attraction draws up the water; in a time averaging from three to twelve hours the stain has become smaller and bloated, so that with the point of the scalpel some can be removed and placed upon a glass slide." Tidy recommends that the stain be steeped from thirty-six to forty-eight hours in an ammoniacal solution of carmine; then unravel the fibres of the cloth and examine each one separately in glycerine under a microscope of 500 diameters. Vegetable fibrillæ are not tinted by carmine, while the heads of spermatozoa become a full red.

Wood, in an article to be soon published, recommends that, using great care, the stain be moistened with water or a solution of salt and glycerine; that then it be gently scraped or squeezed. Sometimes better results can be obtained by staining with a solu-

[1] A paper read before the Haverhill Medical Club.

tion of iodine or eosin, while a trace of hydrate of ammonia diminishes turbidity.

For about three years I have employed odd moments in this line of investigation. I find that, in my hands, the best results are obtained by placing the stain over a watch-glass and moistening it with a lukewarm solution of distilled water rendered slightly alkaline by the addition of a few drops of hydrate of ammonia. I take care that the smallest amount of water is used consistent with a little more than saturating the stain. Allowing this to remain a few hours with the stain uppermost, I reverse its position for a half hour, gently moving it in the water. A few drops are then taken up in a new pipette and transferred to a new glass slide. If careful and repeated examination fails to show spermatozoa, I gently squeeze the stain in the water and try again. A long, patient search is often rewarded. Care must be taken to use the minimum of force in squeezing the stain.

A pure seminal stain may contain beside spermatoza, cells and spherical bodies of the seminal passages, pavement epithelial cells of the urethra and cells of the urethral ducts and glands, lozenge-shaped crystals of phosphate of magnesia, granular masses, leucocytes or globules of spherical mucus.

The spermatozoa may be whole or broken. The whole have tadpole-shaped ovoid heads and long tails, and can be mistaken for nothing else. Their length is from $\frac{1}{500}$ to $\frac{1}{600}$ of an inch, occasionally they are not over $\frac{1}{1000}$ of an inch, while the head is about the length of a normal blood corpuscle, $\frac{1}{3000}$ of an inch. Tailless spermatozoa have been described by Dr. H. Gibbes in the *Quarterly Journal of Microscopic Science*, July, 1880.

The presence of spermatozoa is proof positive of the presence of seminal fluid at the spot from which the substance examined is taken, but how gotten there it does not behoove the medical expert to say. In my investigations I am at present at work on a question which I cannot now answer definitely, but which I suggest as an interesting one with some practical legal value, if solved — How far is the size of the spermatozoa, more particularly the length, dependent on the time since the emission preceding the one from which the stain is produced? It seems to me to have, possibly, some ratio.

In the identification of spermatozoa in case of rape Ungar softens the stained material in distilled water to which he has added hydrochloric acid in the proportion of one drop to forty cubic centimetres of water. He has succeeded in obtaining a double staining of the zoösperms by means of eosine and hematoxylon, of carmine and eosine, vesurine and eosine or methyl-green and hydrochloric acid.

The failure to find spermatozoa does not show positively that the stain is not seminal. The fact may be simply that they are not found while still present; moreover, Caspar insists on temporary absence, variation in quantity, and even existence of spermatozoa in the same individual under varying influence, particularly venereal excess. Spermatozoa may be absent in a boy who is still capable of assault, or in an old man, though they probably exist here after the power of erection has gone, or in very advanced years with the power of erection and emission present, as shown by the record of the case previously referred to where a child was born by a woman aged seventeen to her husband aged ninety-two; in which case the "other man" was not suspected. Adult males with old disease of the testis or double gonorrheal epididymitis may have no spermatozoa.

The vaginal mucus should, when possible be examined after a case of rape. Live spermatozoa have been found in the vagina of a little girl fourteen days after she was raped. Their activity is stimulated by alkalies, diminished by weak acids. Temperature above 120° kills in a short time, so that the prolonged hot douche after a rape would be rational treatment.

The only thing liable to be mistaken for spermatozoa are the trichononas vaginæ described by M. Donné as found in the vaginal mucus of an unclean patient; the heads of these are, however, three times as large as those of spermatozoa. They appear to be granular internally, and several ciliæ are apparent. The spermatozoa, on the contrary, are structureless, and have no ciliæ.

Minute ovoid granulations might be mistaken for the heads of spermatozoa, and, possibly, minute fragments of linen fibre for their tails. Some fungi are also said to resemble those tails, but are clumsier and refract light differently. It is safe *not* to give a *positive* opinion except on the presence of whole spermatozoa.

After months of practice, with increasing skill in manipulation and power of observation, I was able to detect spermatozoa in stains of a month's duration, and felt quite elated. Imagine my feelings to learn from an article by Dr. Wood, previously referred to, that Bayard had detected them after six years and Ritter the same, while Rawson had found them after eighteen years.

In examining a supposed seminal stain in a case of rape, watch should be kept for all other objects appearing in the field, especially for fibres of cloth, hair, pus, blood corpuscles, as these may help to fix the crime on the guilty party.

We should bear in mind, also, that a supposed seminal stain is quite possible to have been caused by vaginal mucus, leucorrhea, gonorrhea, lochia, urethral fistula, nasal mucus, meconium, saliva, or foreign matter purposely put in the position found. The stains of vaginal mucus are more apt to be of a yellow or yellowish-green color; those of pus of a green or greenish yellow; all lack the starchy feel of seminal stains.

Everything used in the examination should be new, and so treated that by no possibility can carelessness be charged to the observer. It goes without saying that the duty of the medical expert is to state what he *finds* positively; when it comes to inferences to be drawn from things found, he treads on different ground and needs to use caution. He can often state that, *admitting certain premises*, a certain conclusion must follow, or that a conclusion suggested is not inconsistent with facts found, when a more positive statement might weaken his evidence by having a portion of it discredited; the average juryman not being any too able to distinguish the difference in value between testimony on matters of fact and matters of opinion.

It should be constantly borne in mind that the medical expert is not the prosecuting officer. He should approach the matter with an unbiased mind, by whichever side he may be employed; if the party accused be guilty, he is convicted on the chain made by the links of evidence of which the medical evidence is but a single link, albeit an important one.

I wish to allude to one other matter here. Rape by

a female upon a male, though unknown to English law, is not unknown to French law. It consists of forcible connection by a female with a male, the latter usually a child, and has been followed by conviction.

In considering the question of rape from the psychological point of view, the first thing to establish clearly in one's mind is the normal process of the awakening and growth of sexual desire. Von Kraft-Ebing thus ably summarizes it: "The psycho-physiological process comprehended under the idea of sexual instinct is comprised of (1) concepts awakened centrally or peripherally, (2) the pleasurable feelings associated with them. The longing for sexual satisfaction (*libido sexualis*) arises from them. This desire grows stronger constantly in proportion as the excitation of the cerebral spheres accentuates the feelings of pleasure by appropriate concepts and activity of the imagination; and the pleasurable sensations are increased to lustful feeling by exaltation of the erection centre and the consequent hyperemia of the genitals (entrance of liquor prostaticus into the urethra, etc.). If circumstances are favorable . . . desire is complied with; if the conditions are unfavorable, inhibitory concepts occur, overcoming the sexual longing and preventing the sexual act." This is to my mind the most complete and at the same time compact statement of the psychological and physiological laws governing the matter under consideration that it has been my fortune to read. It will bear careful study, for upon variations from these laws is based all the pathology of morbid sexual conditions.

Most of what immediately follows is taken from or based upon von Kraft-Ebing.

Rape may be caused by physical defects, moral deterioration, each or both, their interdependence being perhaps much greater than is commonly supposed. It is caused by a temporary powerful excitation of sexual desire induced by excess in alcohol or by some other condition. At first it seems improbable that a man morally intact would commit rape; but the question arises, May not his seeming moral defects be entirely due to a perversion of his brain, and hence cause the exclusion of morality as an element in the consideration of his case? For immorality of necessity presupposes and requires a *mens sana* to be capable of balancing right and wrong and executing deliberate choice with freedom of will. "Lambroso (*Goltdammer's Arch.*) thinks that the majority of men who rape are degenerate, particularly when the act is done by old men on children." "For we must remember that a reawakened, perverse, abnormally intense and uncontrollable sexual desire is known to be one of the manifestations of senile dementia." Other causes that often lead to rape are mania, satyriasis and epilepsy. Murder may follow rape; rape may follow murder; murder out of lust is technically called lust murder.

There is a presumption of lust murder when the genitalia of a person found dead are more injured than would be caused by a brutal attempt at coitus. This presumption is strengthened when the body has been opened and the intestines or genitalia are wanting. Lust murders dependent on psychopathic conditions are never committed with accomplices.

In examining an accused person we should consider whether there be a tendency to *cunnilingus irrunare* on boys or girls, *prædicatio puellarum, coitus inter femora*, exhibition, etc., as going to show a degenerate condition. We must bear in mind that the accused may be a "sane man who by satiety of normal sexual indulgence, lasciviousness and brutality, perhaps also by intoxication, has forgotten that he is human."

The most difficult task seems to me to determine where the line of irresponsibility ends and that of responsibility begins. "Education, cultivation, self-control, constitution, organic influences, alcohol, are all factors to be considered."

To my mind a pathological condition, even of a portion of the brain, does not of necessity imply that punishment is injurious to the accused or useless in preventing repetitions of the act. Hysteria has no doubt a pathological basis in the nervous system; and yet, I have seen pain inflicted by me enable its victim to master it. A pathological condition may be strong enough to produce a decided tendency, but the inhibitory concept of punishment to follow is sufficiently strong to overcome this tendency. There doubtless is a point where irresponsibility begins; but to determine this point each case must be taken by itself, and all circumstances, personal, hereditary, physical, mental and moral carefully considered.

The principal cerebral neuroses enumerated by von Ebing as affecting rape are: (1) paradoxia, the sexual excitant occurring independently of the period of the physiological processes in the generative organs; (2) hyperesthesia or satyriasis, abnormally increased impressionability of the *vita sexualis* to organic psychical and sensory stimuli — this may be central as in nymphomania and satyriasis, or peripheral or organic; (3) paresthesia, excitability of the sexual functions to inadequate stimuli — the domain of psycho-pathology.

Examples quoted of paradoxia are the sexual instinct in childhood — due in the male, for instance, to phymosis, balanitis; in both sexes oxyuris in the rectum — and the consequences of masturbation or a neuropathic constitutional condition. A case in the female subject is quoted in Marc's "Die Geisteskrankheiten" (von Adeler). Another instance of paradoxia is the reawakening of the sexual instinct in old age, senile dementia, attempts of the aged upon children — "The intellect may lead to conceive, but the moral sense is missing." "Hyperesthesia may be caused by pruritus, eczema, cantharides, neurosis, hysteria; it may be intermittent or periodic. The diagnosis of paresthesia depends on the investigation of the whole personality of the individual and the original impress leading to the act to distinguish perversion (disease) from perversity (will)."

"The cruelty of rape is but an exaggeration of the aggressive character given by Nature to man to cause the surrender of a woman in spite of obstacles whose overcoming gives him greater pleasure." It is the prize sought for, and gained by difficulties passed, whose possession makes its owner swell with pride. This instinct carried to excess, causes anthropophagy, as exampled, perhaps, in the Whitechapel cases. The desire to inflict pain and to use violence is termed sadism; its counterpart is mesachism, the desire to suffer and to be subjected to violence. "These are the fundamental forms of psycho-sexual perversion, which may make their appearance at any point in the domain of sexual alienation."

I have endeavored in this paper to set forth enough of the — to me — interesting matters arising in connection with a question which at first sight seems sim-

ple in the extreme, as shall cause you, if ever called upon to deal with a case of rape, to do at the same time justice to the victim and, none the less, justice to the accused. The manner in which such an apparently simple subject leads one through the domains of law, of psychology and of medicine, with their allied branches, is but another proof of the fact we are having impressed upon us every day — the profession we have chosen and which we love is one that, while it renders the task difficult by occupying our time in other and important ways, demands of each none the less imperatively a continual research in every direction, that we may fit ourselves thoroughly for the solemn duties of our lives. And herein lies the charm; work as we will, study as we will, the field is still broad, and never can we say, even if our time is devoted to a special branch alone, we are masters of every detail.

## Clinical Department.

### A MECHANICAL TREATMENT OF ECZEMA IN YOUNG CHILDREN.

BY HERBERT J. HALL,
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Authorities in dermatology will doubtless agree that the application of ointments and pastes is only the beginning of the treatment of eczema. Whatever the type or distribution of the disease, after a wise choice of medicaments comes the greatest difficulty, the prevention of scratching. No matter how carefully the hands and feet may be tied, the child will occasionally get free. The greatest danger is at night when constant watching is not practicable. Tight bands at the wrists and ankles are objectionable, and



they must be tight to hold the child. Let a child feel that he is held so that he cannot move, and a desperate resistance at once begins which will usually end in an aggravation of the disease. In spite of obvious defects, the "pillow-case method" has been considered the best up to the present time. The child is put into a pillow-case and the open end is gathered about his neck. The legs are abducted and sewed in by means of seams on each side, close to the legs. The arms are placed a little way from the body and treated in the same way. The edges of the pillow-case are then pinned to the mattress of the bed. The arms and legs of the child are thus allowed a certain amount of harmless motion, but he must lie flat on the bed and the back is sure to perspire in hot weather. In this method, also, the head is free and the child may rub his ears on the pillow. It is a matter of common observation that eczema of the ears is hard to cure, and this is largely because the child harrows up the skin by rubbing on the pillows at night.

The original suggestion for a new treatment, which I will call the hammock method, was made by one of the Sisters in charge of the wards at the Children's Hospital. Take a stout piece of duck a little longer than the child, and about two-thirds of a yard wide; turn up an inch at each end, and stitch it down for the admission of a straight piece of iron as wide as the cloth, and stout enough to support the weight of the child. These iron rods are the spreaders, and should have a ring at each end for cords, which are pulled tight and fastened to the posts at the head and foot of the bed. We now have a duck hammock stretched tightly over the bed, with a good air-space between it and the mattress. Four many-tailed bandages long enough to include the whole arm or leg are sewed to the hammock in the lines which would be taken by the arms and legs when slightly abducted. The child is placed upon his back on the hammock, ointments are applied on soft cloths, and the arms and legs secured by smoothly tying the many tails. In the canvas on each side of the head a square window is cut, leaving the head supported by a strip perhaps four inches wide. A turn of bandage over the forehead and under this narrow strip prevents the head from being raised. The head can be turned from side to side with considerable freedom, but if the windows in the hammock have been properly placed, the ear finds nothing to rub against and will remain uninjured no matter how violent the twisting of the neck. To complete the apparatus, a small bell is tied to the side of the hammock, so that any unusual struggle for freedom will attract the attention of the nurse.

A sufficient trial of this apparatus has been made at the Children's Hospital to warrant the claim of the following advantages:

(1) Comfort. There are no tight bands, the many tails giving firm but uniform pressure throughout the length of the limb. No part is overheated. The child does not feel restraint, because a good deal of harmless motion is allowed by the play of the hammock.

(2) The danger of scratching is reduced to a minimum, and the ears are especially protected.

(3) Applications are easily made and changed.

(4) Simplicity and cheapness of construction.

## Medical Progress.

### REPORT ON DISEASES IN CHILDREN.

BY T. M. ROTCH, M.D., AND A. H. WENTWORTH, M.D.

#### GASTRO-INTESTINAL SEPSIS.[1]

The works of Widerhofer, Parrot, Epstein, von Hofsten and others have established the fact that the varieties of acute enteritis occurring in the nursing infant, differ when observed in hospitals and in private practice.

1 H. Fischl: Jahrb für Kinderheilk, 1894, xxxvii, p. 288; abstracted in Revue Mens. des Maladies de l'Enfance, November, 1894, tome xii.

Fischl, who has studied the lesions in these cases for a number of years, has been impressed by observing clinically, apparently mild cases which have caused severe lesions of the mucous membranes, and, on the other hand, cases of the utmost severity, in which the lesions were very slight. These apparent contradictions have been explained by the bacteriological examinations. The works of Epstein, Cholmogoroff, Gartner, Gaston, Neumann, von Puteren and others have thrown much light upon the different places of entrance of infection in the new-born.

Epstein has shown that in certain cases the infection can be disguised in the form of an acute enteritis, a fact which is not generally known.

Fischl has examined histologically and bacteriologically 21 cases in Epstein's clinic in which the diagnoses of atrophy, debility, septicemia and gastro-enteritis, the latter in 11 cases, have been made during life. Eleven cases were simply examined microscopically, and in these the organ chiefly invaded by the organisms was the lung. In the remaining 10 cases the examination was completed by the bacteriological examination of the blood taken from the heart, and the other organs were subjected to trituration, and cultures made from the triturates. In these cases he found that when the cultures taken from the lungs gave positive results, the cultures made from the other organs gave the same results. In seven of these cases he found the staphylococcus pyogenes albus. Four of these seven cases had the symptoms of acute gastro-enteritis; the other three had the symptoms of septicemia. In only two cases could he find a suppurative omphalitis. In the remaining cases he only found at the autopsy the lesions of acute gastro-enteritis. The staphylococci were very virulent. In a case characterized by the appearance during life of numerous abscesses in the lungs, the cultures showed the staphylococcus albus and aureus. Finally, in the last two cases examined bacteriologically, he found the streptococcus pyogenes once alone, and the other time associated with the coli bacillus, the latter were localized in the spleen and were not virulent.

The researches in question have shown the existence of micro-organisms, pyogenic and virulent, in the organs of individuals who have succumbed in some cases to acute gastro-enteritis and in others to septicemia. This fact, according to the author, shows that at least a certain number of the cases of acute gastro-enteritis which one observes in hospitals are only a manifestation of acute septicemia.

The anatomical lesions which one finds in the various organs are the following: In the lungs the lesions can present themselves in three forms. Most frequently one finds foci which have been incorrectly designated as inflammatory. In these cases the process consists in a degeneration of the alveola epithelium, causing them to swell and their nuclei to stain imperfectly. After this they are desquamated, and fill the alveoli in such a way as to simulate an inflammatory process. In other cases, in addition to the desquamation of the epithelium, one finds the edges of the alveoli infiltrated with leucocytes which often invade the walls of the bronchioles and advance under the epithelium, as in syphilitic interstitial pneumonia. That which bears witness in these cases to the septic origin of the lesions is the frequency of hemorrhages of which the foci are sometimes sub-pleural, sometimes inter- or intra-alveolar. The micro-organisms are sometimes found at the limits of the lesions as veritable agents of propagation, sometimes in the centres of abscesses and sometimes in the walls of the bronchi, or in the centres of alveoli. They are rarely found in the blood-vessels, but they often fill the lymphatics.

The gastro-enteric tract presents the lesions of gastro-enteritis; but often in spite of the severe clinical symptoms one finds only an intense hyperemia which is perhaps the result of the action of the toxine on the vaso-motor nerves. The micro-organisms are very variable on the surface; but when the epithelium is intact they are found neither in the interior of the cells nor beneath them. Neither are they found in the blood-vessels or lymphatics. When the infection is very severe, a few are found in the mesenteric glands. The liver shows frequently cloudy swelling of the epithelium, but micro-organisms are rare.

In the kidneys lesions of the epithelium are constant in the convoluted tubules, and frequently hemorrhages either sub-capillary or in the glomeruli. Quite often there are miliary abscesses with masses of staphylococci at the junction of the cortical and medullary portions of the kidneys. In other cases the micro-organisms are lodged in Bowman's capsule.

The spleen, which is not always enlarged, presents sometimes a simple hyperplasia, sometimes hyaline changes of the reticulum and of the adventitia of the arteries. The micro-organisms are almost as constantly found in the spleen as in the lungs. The pancreas and salivary glands sometimes show parenchymatous degeneration of the epithelium.

In general, the lesions do not seem to vary with the nature of the infection, but too few cases have been observed to base a definite judgment upon. One thing is shown, namely, that in the cases which are clinically different one finds identical anatomical lesions, suggesting the action of a septic virus of which the special organism can be discovered in certain cases. The places of entry of the infection are variable and difficult to locate precisely. By the side of certain cases where one finds a lesion of the buccal mucous membrane sufficient to be considered as a place of entry, there are other cases in which the mucous membranes are normal.

The infection through the air certainly plays an important part, as shown by the frequency and severity of the pulmonary lesions, by the appearance of suppurative otitis, and by the large number of cases which occur in the winter and spring. In all the cases the infection through the alimentary canal seems to play a secondary part. Cases of infection with gastro-enteric symptoms have been observed in the new-born fed during a few days with an infusion of tea.

In closing, the author cites the works of Sevestre, Renard, Girode, Lesage, Marfcon et Nanu; the work of Meyer who mentions cases of death of the new-born from umbilical arteritis, and found streptococci and staphylococci and the anatomical lesions similar to those which occurred in the author's cases; the work of Strelitz, who found the streptococcus pyogenes in a case of Winckel's disease; and that of Neumann, who isolated the staphylococcus in a case of hemorrhagic diathesis, etc.

### THE HEMORRHAGIC DISEASE OF THE NEW-BORN.[2]

The hemorrhagic disease of the new-born is studied by Dr. C. W. Townsend in an analysis of fifty

[2] C. W. Townsend: Archives of Pediatrics,, August, 1894, p. 559.

cases, which he has grouped together under the title given above, owing to the presence of certain characteristics common to all the cases. These are, the general and not local nature of the affection, its self-limited character, and the presence of fever. These, together with the greater prevalence of the disease in hospitals, would suggest an infectious character. Thus 45 of these cases occurred in the Boston Lying-in Hospital, making about two-thirds of one per cent. of all the cases; while five cases only, occurred in the out-patient department, or one-tenth of one per cent. The general character of the disease is shown by a table giving the various sources of the hemorrhages, which include the gastro-enteric tract, the various cavities and the skin. Although bleeding from the umbilicus occurred in eighteen cases, in only three was it unaccompanied by hemorrhage elsewhere.

The self-limited character of the affection is shown by the fact that in all cases, the bleeding began within the first week, or at the latest within the first two weeks of life, and all went on to death or complete recovery within five to nine days.

The distinction between this affection and true hemophilia is insisted on, the latter rarely showing itself in the first year of life, being not self-limited and occurring much oftener in females, which is not the case in the infantile affection.

The temperature charts are of interest, and show a preliminary rise to 102° or 103°, followed by a subnormal temperature as a result of the loss of blood. A test for the recognition of disintegrated blood in the stools is given (Teichmann's test), and the results of post-mortem examinations.

For treatment it is important to remember that the disease is self-limited and not necessarily fatal — 62 per cent. in Dr. Townsend's cases. Perfect quiet, careful feeding with a spoon or dropper, warmth in the stage of collapse and alcoholic stimulants even in the stage of bleeding, are recommended.

### PATHOLOGY OF RHACHITIS.[3]

The very first signs of rhachitic disease in the infant are always found in those parts of the bones which are in the most active stage of development.

In the first days of extra-uterine life, it is the skull which undergoes the most marked physiological changes. Rhachitic disease of the skull attacks preferably two regions: the occiput, extending into adjacent parts of the parietal bones; secondly, the borders of the anterior fontanelle.

The author divides the skulls of the newly-born into three different classes: first, those in which all the fontanelles, with the exception of the large one, are closed, the cranial bones are in firm juxtaposition with no defects in their development. The second group consists of skulls, the bones of which are still very movable and often overlap each other. The third group includes those cases in which we find all the changes present which at a later period in the development, we would call a true craniotabes. Now the question arises, how far the conditions of the third group are physiological and how far pathological, or can we draw a sharp line between the physiological and very early rhachitic disease. To solve the question, the author examined 1,164 children and found 34.6 per cent. had craniotabes. The higher percentage was obtained in those under three months of age; it decreased steadily up to the first year when there was an abrupt fall in the percentage to less than one-half of the preceding three months. During the second year, the cases of craniotabes diminished rapidly, but a few sporadic cases were still met with in the beginning of the third year.

The rhachitic changes in the cranial bones range from simple softening which can only be detected by the most careful palpation, to the total destruction of the bone, in which the latter presents itself as a soft pulpy mass; along the borders the bones undergo changes, which mark the degree of severity of the disease; from the simple softening of the border, to absorption of the bone, sufficient to cause a gaping of the sutures up to a finger's breath. The sagital suture is most frequently attacked. A further sign of craniotabes is the long-delayed closure of the small and of the posterio-lateral fontanelles; in the majority of the newly born these fontanelles are almost entirely closed. Another characteristic sign of early craniotabes is the softening of the borders of those bones which go to make up the large fontanelle. This condition of the bone is always pathological and never physiological, as formerly claimed; furthermore it is claimed by the author, that in healthy children the closure of the large fontanelle is a continuous process from the first day of extra-uterine life, and not, as claimed by Elsaesser, that the fontanelle enlarges up to the ninth month, after which it begins to close. How is it in rhachitis?

The author differentiates three modes of closure of the large fontanelle: first, it may follow the same rule as in healthy children, that is, it grows smaller with age; secondly, it may remain unchanged for a shorter or longer interval and then diminish in size; or, thirdly, it enlarges primarily, and then after remaining stationary for a time, closes. The average size of the large fontanelle in rhachitic children is, even in very early life, far greater than in healthy ones, and the closure may be delayed until the second half of the third year; any enlargement of the large fontanelle is always a pathological condition, and if not due to hydrocephalus, is always caused by rhachitis.

It is the first year of the infant life in which these changes of the large fontanelle take place, but in some cases the disease undoubtedly started in utero. Craniotabes is usually found in all these cases, but there are some in which the above changes of the large fontanelle may be the only symptom of rhachitic disease. Another very important symptom of early rhachitis is the change found at the junction of the ribs and their cartilages, the so-called rhachitic rosary. It often requires a very careful examination to find this sign in less pronounced cases. Rhachitis is by far a more frequent disease than the older writers would lead us to believe. It requires a careful examination and careful observation of our little patients to reveal the less marked signs of the trouble.

In Berlin, the author found out of 1,303 patients, 858 had rhachitis, a proportion of 65.8 per cent.; among 498 children under six months of age, 313 were rhachitic, or 62.8 per cent; showing that the disease may start in very early life, and rhachitis congenita is by no means rare. The congenital form usually manifests itself in changes in the cranial bones.

As to the climatic influence on the disease, the author has found that there was a marked fall in the proportion of the affected during the summer months,

[3] Cohn: Pathology of Rhachitis, Jahrbuch f. Kinderheilk, Band xxxvii, Heft 2, abstracted in Archives of Pediatrics, August, 1894.

which is explained by the changes in the hygienic surroundings of the patients.

Rhachitis is always a constitutional disease, and its manifestations may be divided under two headings:

(1) All the various affections of the bony skeleton.

(2) The disturbances in the nervous system.

One or the other of these may be especially pronounced, or both be equally well marked.

The enlargement of the spleen has not been as frequently met with as claimed by Kuttner.

In the therapeutics the author does not give anything new; good hygienic surroundings are the cardinal indications. Phosphorus, which, according to Kassowitz, is a specific *sine qua non*, has always been of benefit and particularly in the cases which show marked disturbances of the nervous system.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, November 12, 1894, the President, DR. C. F. FOLSOM, in the chair.

DR. C. B. PORTER showed a specimen of

MYOMA OF THE UTERUS,

weighing thirteen pounds, removed by abdominal section.

DR. J. H. MCCOLLOM and DR. H. C. Ernst read papers on

THE IMPORTANCE OF BACTERIOLOGICAL INVESTIGATIONS IN CASES OF DIPHTHERIA.[1]

DR. S. H. DURGIN: I have been asked to say a word about the recent appointments and plans of the Board of Health for the inspection of schools and the care of contagious diseases. I would say that I have been very much interested in the papers, and I consider the bacteriological work an excellent part of the plan which has been laid out for the suppression of diphtheria.

It is well known that for many years diphtheria in Boston has been practically endemic, but in the last few months it has increased so much as to possibly bear the term epidemic. In September diphtheria increased considerably, in October very much more; and so far during the present month it has increased faster than it did previously. I have drawn from our records the number of cases and deaths which have occurred each week since the first of September, 1894, and find that in September there were 236 cases, with 72 deaths; in October 367 cases and 105 deaths; for the first ten days of November there were 266 cases, an equivalent of 798 cases for the month should it go on at the same rate, and with 58 deaths; a total for ten weeks of 869 cases and 235 deaths, and a percentage of deaths amounting to 27, which, by the way, is not large, and if we take into account the fact that many cases exist without being reported the percentage would be still lower. There are many mild cases which do not come to our knowledge, while practically all deaths are reported. With this increase, with the alarmed feeling in the public, the Board of Health has been enabled to put in operation a plan which it matured and tried to inaugurate three years ago. We have appointed fifty physicians, divided the schools into fifty districts, and placed one physician in charge of each district. Their duties will be to visit each school every day soon after the beginning of the morning session, and see the teacher, who will bring to the attention of the physician any case of illness that may be noticed in the school. The physician will make an examination of the child and advise the teacher whether or not to send the child home, and make a record of the facts. Another duty for the officer, is to visit each case of reported scarlet fever or diphtheria in his district each day, the Board of Health sending to him each morning a list of all the cases of diphtheria and scarlet fever occurring in the city, with their location, so that each officer will be able to pick out those cases which are to be found in his district. He will visit the family of the patient simply to see whether or not the order of the Board of Health as to isolation is being carried out, and report the facts to the Board of Health. He will also at the termination of the disease report to the Board of Health the fact; and in cases of diphtheria that report must be based upon a bacteriological examination which has shown that the diphtheria bacilli were absent; then the Board of Health will issue its certificate for the release of the patient and the disinfection of the house.

I hope it will not be understood by the physicians that this is intended to interfere with any of their prerogatives; it is rather intended to relieve them of many unpleasant importunings for the release of patients from isolation before it is safe to do so.

It is the purpose of the Board to relieve you of that duty and narrow down the responsibility to a small number of officers whom we shall hold responsible for certificates of complete recovery in cases of scarlet fever and diphtheria. The return of children to school is a subject for subsequent consideration; and we do not propose to interfere with the exercise of the statute law which requires that no child from a household in which there is a case of small-pox, scarlet fever, diphtheria, etc., shall attend school until two weeks have elapsed after the recovery, death or removal of the last case of the disease, and that that fact shall be certified by the attending physician, or the Board of Health. Certificates of recovery, for disinfection and school attendance have been given carelessly, and it would be an unpleasant duty to reject one and accept another physician's certificate. I have seen a mother with a certificate of recovery in one hand and the desquamating child holding the other hand, in the health office down-town asking for disinfection. Many children have gone back to school while desquamating from scarlet fever, and many children have gone back into school while Dr. McCollom's examination would show the presence of the diphtheritic bacillus; and it is a fact well known to all of you that one of the great causes of the unreasonable presence of diphtheria in our city has been from children convalescing from diphtheria and scarlet fever in the streets, in the schools, and elsewhere out of isolation. It is with the view of holding these children in isolation, until such time as they can no longer convey the disease to others, and to correct an improper and dangerous school attendance that we have instituted this new work.

[1] See pages 49 and 52 of the Journal.

We have not quite completed our arrangements; but there will be in every part of the city a station in which culture-tubes will be lodged, and all physicians are invited to make use of them, to make the cultures as suggested by Dr. McCollom. They will be sent daily to the Harvard School Laboratory and there examined; and at the end of twenty-four hours a word returned to the physician as to the result. I have also prepared, and it will be sent out to-morrow, a list of all the cases of diphtheria and scarlet fever that have occurred in Boston during the month of October, for the use of the physicians who have been appointed in the districts. One of the drawbacks which face us at the present time is the want of hospital accommodations. The new wards of the City Hospital which are now being prepared for this purpose will not be ready under two or three months. If we had the hospital room we would at once remove many cases of diphtheria which are now spreading the disease for want of possible isolation.

DR. F. H. WILLIAMS: I have been very much interested in what has been said this evening; and it seems to me that we cannot do too much to attempt at least, and I believe it can be attempted with success, to lessen the amount of diphtheria which we have in our community. Two years ago I began making the bacterial tests on patients with membranous throats, and for nearly two years they have been made regularly in the pathological laboratory of the City Hospital. During that period I have read three papers on the subject of diphtheria, and perhaps what I have to say will be simply a repetition; but as the subject is important, you will pardon me if I rehearse some of the points which need to be emphasized frequently. I think it is well to bear in mind in the first place the natural history of this disease. First you have the bacillus in the throat. This stage may last for some hours, or for a number of days, and then is followed by congestion, and later, usually, by false membrane. One cannot tell with certainty whether it is a case of diphtheria or not in the first stage without the bacterial test, nor in the last stage after the membrane has disappeared from the throat. The bacilli may remain in the throat for weeks or months. I recall a case where the bacilli remained one hundred days from the time that the disease was supposed to have begun, and these were dangerous bacilli that were capable of infecting healthy persons. The bacterial test is indispensable during the first stage, when there is nothing to be seen. Let me cite a case that occurred in a family where there was diphtheria. A swab was taken from the apparently normal throat of an individual who had been much in contact with the patient, and she was then sent to a laryngologist who reported that there was nothing to be seen in the throat. Thirty hours after this examination the membrane appeared, and it proved to be a very severe case of diphtheria. The swab had detected the bacilli in the throat before there was any other evidence of the disease.

As regards the prevention of this disease. It is spread, of course, in various ways, but I am inclined to think chiefly by being transferred from mouth to mouth or from hand to mouth or hand to nose. Another point, and one which so far as I know is a new one, is to have the bacterial test applied to all the members of a household in which there is a case of diphtheria. I made this a rule some time ago. In a family with several children, one having diphtheria, you are quite likely to find within a few days or weeks that some of the other children develop the disease; and the same is true in a school, or where any number of children are together, and for that matter also adults. Roughly estimated, I should say that in most of the families I have examined thus far I have found wholly unsuspected cases of diphtheria, so that the first thing to do after discovering a case of diphtheria is to have the bacterial test applied to all of those who have had any chance of getting the disease; then we shall be able to know early when the patients have it, and take suitable precautions and treat them early. If the disease is treated early locally, except in very young children, the patients usually recover.

As regards the trustworthiness of the bacterial test. Although those who have had experience with it are inclined to advocate it warmly, I think we should remember that it is not infallible. Up to the present time the bacterial test has been applied to something over five hundred of my patients. Now, at times, the test does not detect the bacilli when present. That is not common, and I do not make this statement to discourage any one from having belief in the test and using it as much as possible, but the test may have to be repeated two or three times before the bacilli are found, and sometimes even then does not show them. These cases, I think, are rare. I recall one case where cultures were made with negative results but I believed it to be a case of diphtheria. A swab was taken from a piece of false membrane and examined with negative result. Then a bit of sterilized cotton was rubbed over the membrane, put on a cover-glass and stained without waiting for growth in the culture-tube and the bacilli were readily detected. They were just as characteristic as you get from the culture-tube.

What Dr. Durgin said about the increase in the disease reminds me that October, November, December and January are the four months in the year during which the mortality from diphtheria in this State is greatest, so that we are in the midst of the diphtheria season.

DR. R. H. FITZ: I have been much interested in listening to what has been said this evening, and especially the evidence which has been brought out by Dr. McCollom. We are all deeply impressed with the communications made at the recent Congress in Buda-Pesth, not only with reference to the recognition of diphtheria and to the precautions to be taken against its spread, but also with reference to the treatment of this disease. The uncertain progress of sore throats is so evident that it has been my custom for a number of years to look upon all such cases with a considerable degree of suspicion, and to advise isolation if there is the slightest reason to consider them as deviating from the ordinary course, especially if particularly severe or suggestive of the formation of a membrane. It would seem as if this precaution could not be too distinctly borne in mind, especially by physicians who have not the facilities which the city offers for bacteriological investigation. Certainly they would err on the right side; and there seems to be a growing reason why cases of even apparently simple sore throat should be isolated for a few days, like doubtful measles or scarlet fever. At the same time we must remember that diphtheria bacilli may be found in throats of persons who show no symptoms

of diphtheria, and that there are cases of the prolonged retention of diphtheria bacilli in the throats of patients who have long been free from symptoms. Hence, it is evident that the mere presence of the diphtheria bacillus is not sufficient to make a diagnosis of diphtheria, and that persons need not be necessarily frightened because diphtheria bacilli are found in the throat. It is, however, very important to recognize the fact that if such individuals do not suffer directly from the disease, they represent vehicles of contagion, and that persons exposed to contact with them may suffer in the severest possible way. It is to be hoped that Dr. McCollom will continue his investigations with reference to this class of cases, that is, healthy persons who have no symptoms of diphtheria, and who for a longer or shorter time may harbor these bacilli in the throat.

A point Dr. Durgin has mentioned with reference to the mortality in the present epidemic is interesting. He says the total number of cases of diphtheria is not represented by the figures in the possession of the Board of Health, but a great many unsuspected cases exist; hence, the mortality may appear unduly excessive from the large number of unreported cases. I was interested in this statement because there arrived to-day the latest information from Koch's laboratory and hospital, with reference to the mortality of diphtheria treated by the serum method, according to which only about 16 per cent. of the cases thus treated are fatal. This gives evidence that of the cases which are sufficiently severe to be brought into the hospital for treatment, the mortality is represented by that figure. On the other hand, the statement is made that no death occurred among cases of diphtheria brought under treatment in the first two days of the disease, at which time they are probably to be regarded as mild cases. Certainly it is a great advantage to be able to recognize a possible or probable case of diphtheria before any symptoms of severity appear, and in case the serum treatment continues to hold the position it now assumes, by an early recognition to reduce enormously the mortality.

DR. DURGIN: Dr. Fitz mentions the interesting fact that many of the cases of apparent tonsillitis might prove to be diphtheria if properly examined, and expresses the hope that Dr. McCollom will continue these investigations. I neglected to say that there is and will be the broadest invitation possible to the physicians of Boston to make use of these culture-tubes with the slightest suspicion that you can have in case of ordinary looking tonsillitis or sore throat. If you have any doubt whatever, you are invited to take these tubes, make the culture, and leave it at a station. You merely have to take the tubes from the station, return them, and get more tubes. I will also say that Dr. McCollom has been relieved from all other duties and assigned to the excellent work which he is now doing with Dr. Ernst, who has also been given such additional help by the Board of Health, as he has asked for, to carry along the bacteriological work.

DR. E. M. BUCKINGHAM: I entirely agree with Dr. Williams that diphtheria is conveyed by actual contact, either direct or indirect, and to no appreciable extent through the air. Both clinical and bacteriological evidence, so far as I know them, point in this direction.

DR. F. I. KNIGHT: I am sorry not to have heard Dr. McCollom's paper. I want to say one word in regard to the value of bacteriological investigation of the patient after recovery, in deciding when he shall return to his ordinary avocation and associate with the family, etc. It seems to me that although this is a good thing, too much value ought not to be attached to a negative result of the examination, for the reason that the region from which the cultures are taken is so limited, and there is such an opportunity for remaining disease in the posterior nares and in the inaccessible parts of the upper air-passages.

DR. WILLIAMS: If I may be allowed one word more, I would like to say that you may find cases of diphtheria where nothing appears in the throat, and in a few days the baccilli disappear. On the other hand, as regards what Dr. Knight said, we must be very careful not to rely on one negative report. I think it is well to say that all methods of treatment are much more successful if begun early — either the serum treatment or the local treatment. The local treatment, which has been used by Löffler in 96 cases, three-quarters of which were diphtheria, was very successful indeed; all recovered. In the cases I treated with strong hydrogen-dioxide solutions, which I saw early in the disease, the mortality was less than ten per cent.

DR. F. W. DRAPER: I am glad of an opportunity to testify how heartily in sympathy I am with all that has been said to-night. What has been said has been progressive and reassuring — progressive because it shows that our teachers are alert and abreast with the latest scientific researches; and reassuring because we have had a demonstration that is distinctly in the line of preventive medicine; and it seems to me that not only the profession, but the entire public, should recognize that fact and be truly grateful for what has been done with such success. I hope the example set by the City Board of Health will be followed by local boards of health elsewhere; and I trust that the State Board of Health will also take up this kind of work and aid in measures from which the public will benefit.

DR. ERNST: One thing I would like to call attention to. It seems to me that one of the most important points shown by this work of Dr. McCollom's is the fact that in no single case where the bacilli of diphtheria have not been found has there been any indication of diphtheria occurring in that patient afterwards, so that the probabilities are that there is some other explanation of the failure of bacilli to grow in the cases collected by Dr. Williams. The special point we have been trying to make is that the method of diagnosis is trustworthy.

DR. H. E. MARION: I have to show the

### CLINICAL CHART OF A CHILD WITH MILD TYPHOID FEVER.

The highest temperature reached 105°. The pulse never reached above 60; the lowest and *normal* pulse of the child was 35. It is a case of brachycardia. The boy, fifteen years old, has been under my observation since infancy and this (35) has been his normal pulse.

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GASTROSTOMY IN A YOUNG CHILD.— At the meeting of the Société de Chirurgie at Paris, December 19, 1894, Dr. Monnier presented a child five years of age upon whom he had done gastrostomy for an impassable stricture of the esophagus due to swallowing caustic potash.

## THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

Regular Meeting, November 10, 1894, the President, Dr. Charles M. Green, in the chair.

Dr. H. W. Broughton read, by invitation, a report of

### TWO CASES OF SUDDEN DEATH IN CHILDBED.[1]

Dr. J. B. Blake referred to a case reported by Dr. F. B. Harrington and the late Dr. Strong, where the patient on the point of death from hemorrhage was saved by a large intravenous injection of saline solution.

Dr. C. E. Stedman said that the writer was particularly to be commended for reporting fatal cases, as these are often much more instructive than successful cases. The subcutaneous injection of saline solution has been found of great value and is much easier to perform than intravenous injection.

Dr. A. Worcester referred to a case where a physician saved a case of post-partum hemorrhage following placenta previa by pumping a large amount of salt solution under the skin by means of an aspirator. The water thus injected is rapidly taken up. The amount of water which is taken up by the digestive tract in these cases is astounding. Hence it is reasonable to give water by the mouth as well as the rectum.

Dr. G. D. Hersey, of Providence, especially commended the use of saline solution by the rectum.

Dr. C. M. Green reported briefly a case of placenta previa with hydramnios which he had recently had at the City Hospital. Here he delivered promptly, and the patient made a good recovery.

## Recent Literature.

*On Chorea and Choreiform Affections.* By William Osler, M.D., F.R.C.P. (Lond.) etc. 8vo, pp. x, 125. Philadelphia: P. Blakiston, Son & Co. 1894.

A portion of this book has already been published in the lectures on chorea which appeared in the *Medical News* in 1887, and the statistics are based upon 554 cases in the records of the Philadelphia Infirmary for Diseases of the Nervous System. There is also a fairly good summary of the recent literature of the subject. The study of the subsequent condition of the heart in choreic patients, published by the author in 1887, has been continued, confirming the previous results. In 51¾ per cent. of the cases examined two or more years subsequent to the attack there were signs of organic heart lesion. In addition to the chapters on chorea the book contains a chapter on the habit spasms and tics, and one on Huntington's chorea, and a table of recent autopsies, seventy-three in number, which have been published since 1881, few of which seem to refer to the condition of the nervous system.

With the exception of the study of the heart the book contains little that is new. It is a useful compilation, such as might be made by almost any one having access to a good medical library and the records of a large clinic, but considering the author's reputation, such a production is a distinct disappointment. It is hastily compiled, and often we miss the conclusions which we might expect.

[1] See page 53 of the Journal.

THE BOSTON

# Medical and Surgical Journal.

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## THE SEMI-CENTENNIAL OF ANESTHESIA.

An extremely interesting anniversary has quite recently been celebrated in Philadelphia, and an account is given in the *International Dental Journal* for January.

December 11, 1844, was the day upon which Dr. Horace Wells, of Hartford, took nitrous oxide, and while under its influence submitted to the extraction of a wisdom-tooth for the purpose of testing the power of nitrous oxide to annihilate pain. On December 11, 1895, there assembled at Philadelphia a number of dentists and others to celebrate the fiftieth anniversary of that event. This action of Dr. Wells was brought about by his observation of the effects of laughing-gas as administered by Mr. S. Q. Colton, during popular lectures on chemistry. Wells took it himself, and was present while a Mr. Cooley bruised his knees in a way to attract the attention of the audience while he himself was unconscious of the bruise.

The anniversary was celebrated by addresses, a dinner and after-dinner speeches, which certainly did honor to the occasion. Not the least interesting individual present was the Mr. Colton, whose chemical lectures, with their exhibition of laughing-gas, were the starting-point in anesthesia evolution. Dr. Fillebrown, of Boston, spoke of the historic side of the discovery, and to his address we are specially indebted. Such great discoveries seldom leap unheralded upon the world. Anesthesia was said to be accomplished by the ancients, and the drugs first used in the modern history of anesthesia were known long before their practical application. In 1800 Sir Humphrey Davy made his remarkable statement, that "As nitrous oxide gas appears capable of destroying physical pain, it may probably be used to advantage during surgical operations in which no great effusion of blood takes place." One of the very interesting points in Dr. Fillebrown's address is the introduction of a letter from Oliver Wendell Holmes to Dr. Morton, in which he proposes the use of the words "anesthesia" and "anesthetic" as

the necessary noun and adjective to describe the new conditions.

The celebration was intended only to pay to Dr. Wells the tribute for the first application of an anesthetic agent. There was no desire apparent to rob others of the credit of their labors, without which anesthesia might still be awaiting its development; but all will be interested in Dr. Fillebrown's distribution of the honors among those connected with the early days of its history. Reduced to its baldest statement that distribution is as follows:

Dr. Wells observed the effect of the gas, and said, "I believe a man may, by taking that gas, have a tooth extracted or a limb amputated and not feel any pain." Dr. Wells further determined to try it on his own person. C. Q. Colton administered the gas to Dr. Wells for this first operation, and Dr. Riggs extracted one of Dr. Wells's molar teeth. Dr. E. E. Marcy suggested to Dr. Wells the use of ether instead of gas, and verified its action. Dr. Morton made the first public application of ether for surgical anesthesia. Dr. Jackson claimed to have suggested all that Morton knew. Dr. Simpson made himself famous by the popularization of the anesthetic power of chloroform. Dr. Holmes suggested for this condition of insensibility the name which has become universal. Dr. C. W. Long, of Georgia, used ether for anesthesia three times during 1842–3, but his connection with the subject was not mentioned until many years after the fact. Dr. Henry J. Bigelow's connection with the ether discovery was "important, perhaps vital, to the success of anesthesia at that time. . . . He practically supervised etherization during the first year of its use; he announced to the world the discovery of ether in a paper read at the Academy of Medicine November 3, 1846."

It is difficult at the present time to realize the opposition that was felt to the use of any agent intended to interfere with the "natural and physiological forces that the Divinity has ordained us to enjoy or suffer." It is scarcely credible that a clergyman should write that anesthesia is "a decoy of Satan, apparently offering itself to bless women; but in the end it will harden society and rob God of the deep, earnest cries, which arise in time of trouble for help."

The meeting was rightly felt to be not merely interesting but important, in its tribute to a man upon whose memory there remains no blot or stain; against whom "no charge of selfishness, dishonesty, deceit or unfairness was ever made." It was organized as a national tribute to the memory of Wells; the meeting at Hartford, December 10th, to which allusion was made in the JOURNAL, (December 13th, p. 596), and that in Boston, December 26th (JOURNAL, January 3d, p. 19), having a more local character.

AN ELABORATE TEMPERATURE CHART. — An elaborate chart for three-hourly temperature record, with space for pulse, respiration, record of bowels, urine, food, baths, etc., has been prepared by Dr. D. T. Lainé, M.P., and published by W. B. Saunders & Co., 925 Walnut Street, Philadelphia.

## ANIMAL EXTRACTS.

THE use of thyreoid extract in myxedema was based upon deductions drawn from careful scientific experimentation, and the benefits obtained from such use conclusively proved the correctness of these deductions. In consequence of the great success obtained in myxedema by the use of the thyreoid gland and its extracts, extracts have been made from many other organs, which have been used in various diseases quite empirically, and without any rational support from experiments. Several of them have even a factitious importance by the endorsement of certain well-known men. An interesting discussion in Germany[1] gives us valuable information as to the value of these extracts. Fürbringer states that the hypothesis in regard to certain glands is that they supply certain antitoxins to the blood, which render certain poisonous substances in it harmless, and prevent auto-intoxication; and that, when these glands are diseased, some form of intoxication follows. In regard to Brown-Séquard's testicular juice, Fürbringer, as the result of his own experiments, found neither a rejuvenating or an invigorating influence, which Brown-Séquard has tried to explain in other cases by the antipathy of the experimenters. Brown-Séquard claimed remarkable results in the treatment of tabes, epilepsy, neurasthenia, and even phthisis, but Massalango found as much benefit from injections of water in impotence, and Féré found the juice useless in epilepsy. Poehl has substituted spermine, which he claimed was a normal constituent of the blood, and was necessary where the oxydizing power of the blood was diminished. Little benefit has yet been shown from this; Posner and Eulenburg speak very guardedly of its action in tabes, and Fürbringer is still experimenting on it; but has seen little benefit from it. The treatment of myxedema by thyreoid preparations rests on a scientific, rational basis, and, like most observers, Fürbringer had found it beneficial. The treatment of diabetes by pancreas juice rests as yet on little experimental evidence, and in some cases of diabetes the pancreas is healthy; in two cases he obtained no benefit. Babes found that in neurasthenics treated for rabies by Pasteur's method the neurasthenic symptoms also disappeared, which he attributed to the injection of nerve matter. Cardine was claimed to show remarkable results in the treatment of heart disease, nephrine in renal disease, and hepatine and musculine have also been introduced. The value of all of these was still undetermined, and the clinical judgment very difficult, owing to the possibility of suggestion.

Leyden had tried pancreas in various forms in the treatment of diabetes without producing the slightest diminution in the amount of sugar.

Goldscheider had studied the effect of the animal extracts for a year and a half in Leyden's clinique. The changes produced by removal of the thyreoid or the testicles indicate that the glandular secretions are

[1] Verein für Innere Medicin. Therapeutische Monatshefte., April, 1894.

of great significance, and they furnish a scientific nucleus for their use, although their use is not free from danger. He had treated six cases of diabetes with pancreas juice without any benefit, and a case of exophthalmic goitre with thyreoid extract without any effect, good or bad. Pernicious anemia had been treated by preparations from the spleen and bone-marrow without benefit. Nerve matter was not thought worthy of serious discussion; spermine had not been tried. Spleen and bone-marrow were used with apparent benefit for a time in leukemia, but the patient soon died. Goldscheider considers the animal extract treatment dangerous for medicine. The laboratories should first isolate active principles, which can then be employed clinically.

Posner had tried spermine in neurasthenia and loss of sexual power, but without any benefit. Senator had tried pancreas juice in diabetes with no results. Spermine has given very good subjective results in tabes, but injections of normal salt solution did the same.

Except in the case of thyreoid extract the results from the use of all the other animal extracts seem almost wholly negative. The glandular secretions may furnish some substance necessary to the animal economy under normal conditions, as has been demonstrated in the case of the thyreoid; and, in disease, when this substance is no longer supplied, the glandular extracts may make up for the deficiency. For most of the glands, however, this is a mere hypothesis, and we need more experimental evidence before employing these extracts, of whose composition and action we know nothing, in the treatment of disease. Preparations from non-glandular tissues, the brain, the cord, the heart, and the muscles, are different. There is no evidence that they furnish any necessary substance to the economy, and the use of them in therapeutics has as yet not even a rational hypothesis to support it.

## RELAPSE AND IMMUNITY AFTER DIPHTHERIA ANTITOXIN.

WOLFF-LEWIN reports[1] a case of diphtheria in which a typical recovery under antitoxin treatment was followed in two days by the urticaria-like eruption, swelling of the joints, fever, etc., sometimes noted. Recovery from this attack took place in six days, and was followed two days later by a slight recurrence of the diphtheritic membrane on the left tonsil, attended by fever. Further continuance of the antitoxin treatment was thought unwise by the physician and the family of the patient. The recurrence ran a mild course and the patient fully recovered. Another very important point about this case is that the attack took place five weeks after an injection of Behring's antitoxin had been given with the object of conferring immunity. As the child was exceptionally exposed, a brother being ill with diphtheria in the same house, two doses of Behring's serum No. 1 (60 units) were given, a single dose being considered by Behring sufficient to produce immunity. As the immunity in this case lasted only five weeks, it would point at least to the conclusion that a double immunizing dose does not ensure a doubly long period of immunity.

The fact that Behring himself has recently increased the immunizing dose of antitoxin, and shortened the estimated period of immunity, shows that our knowledge of immunity in diphtheria is still very rudimentary. If the period of immunity depends upon the strength of the injection, it will certainly vary, for it seems hardly possible that even with the greatest care, an antitoxin serum of absolutely constant strength can be produced. The normal unit of strength is calculated on the basis of the amount required to protect a guinea-pig against a dose of toxin which proves fatal in other guinea-pigs. We have here a large element for variation in the varying resistance to the toxins of the animals employed, which can hardly be supposed to be constant. Other examples of an almost unavoidable uncertainty as to the strength of the toxins employed and antitoxins produced might be multiplied.

Practically there has been found to be a variation in the strength of the antitoxin produced by the British Institute of Preventive Medicine. Drs. Washburn, Goodall and Card, in the series of cases noted in our last issue, found that, immediately on beginning treatment with a new consignment of serum, a more rapid effect was noted, and a smaller dose was required to produce a given result. On investigation it was found that this consignment was the first product from a fresh horse not previously employed. Roux has noted marked variation in the strength of the serum produced at the Pasteur Institute, and has in one case been obliged to administer doses amounting to a total of nearly seven ounces.

It would seem, in the light of these experiences, that there might be some slight variation in the "*antitoxin-normal-einheiten*" produced under Behring's own direction.

Whether or not the period of immunity depends upon the strength of the injections, it will probably vary with unknown peculiarities of the patient, and be a very variable quantity, capable of approximation only within wide limits.

## HYPNOTISM AND MURDER.

NOT long ago a Kansas farm-hand named Macdonald murdered Thomas Pelten. When brought to trial Macdonald urged in his defence that he had been hypnotized by Pelten's enemy, Gray, and compelled to commit the deed by hypnotic suggestion. The jury therefore acquitted Macdonald and adjudged Gray guilty of murder in the first degree. Their verdict has been set aside by the Supreme Court and a new trial granted. Macdonald, the actual murderer, of

[1] Deutsch. Med. Wochenschrift, 1894, No. 52.

course goes free, and Gray can hardly be convicted on a new trial.

Granted that these statements, for which we rely upon the reports in the daily press, are accurate, the question which is thus brought forward is a serious one, and it is obvious that, if such a verdict were to stand, Kansas law would be far more fatal to society than Kansas political economy. We may accept the modern theories as to the criminal, and admit that he is the inevitable product of bad heredity, evil environment, and degeneration; we may often question how far he is responsible for his criminality, but when it comes to the practical point society decides that, for its own protection, the criminal must suffer for his acts in person, and not through his parents or his evil neighbors. If the criminal himself is to escape, and if the punishment is to fall on those who have influenced him to evil, the results will be disastrous. All our criminals will at once claim to be honest but misguided folk, and some of our best citizens may be accused of instigating others to crime. This theory had a practical application here in Massachusetts two centuries ago. Several mischievous young persons escaped a well-deserved whipping and a number of harmless old women were hanged for having bewitched them, and thus compelled them to do many ill deeds against their will.

Not even the marvellous properties attributed to hypnotism can induce us to go back into the dark ages and rake up once again the belief in witchcraft. Unfortunately the study of hypnotism seems peculiarly adapted to develop the credulity of the student, and the literature of the subject to-day contains a vast amount of matter that cannot stand scientific criticism. At the trial of Gabrielle Bompard in Paris, Bernheim and other leaders of the so-called Nancy school, urged the same defence as in Macdonald's case, but the verdict was not in accordance with their views. In spite of the make-believe "laboratory" crimes committed under hypnotic influence, the weight of evidence is in favor of the belief that an honest man cannot be made to commit crime under such influence. Moreover, even Bernheim admits that no one can be hypnotized against his will. The alleged tool of the hypnotizer has therefore voluntarily made himself the agent, and has yielded to suggestion as another might yield to alcohol. If we accept the extreme views as to suggestion, the paid murderer has simply yielded to the suggestion of gold. The hypnotized murderer might have resisted at first, but, not having done so, he ought inevitably to suffer the consequences of his acts. If it can also be proved that the hypnotizer suggested the crime, and planned its details, he becomes an accessory before the fact and is likewise amenable to the law. The Kansas verdict is not in accordance with scientific facts or sound jurisprudence, yet its contagion has already spread into another State, and, in view of the enormous amount of credulity in the community, we fear that other criminals may also escape well-merited punishment.

## MEDICAL NOTES.

MCGILL UNIVERSITY SEEKS PROF. WM. OSLER. — Prof. William Osler of the Johns Hopkins University, has been offered the position of president of McGill University, Montreal.

"PASTEUR STREET." — The Municipal Council of Paris has decided to change the name of the *Rue d' Ulm* to Rue Pasteur, in honor of the distinguished scientist.

A GOOD EXAMPLE.— The City of Sydney, Australia, has imposed a fine of one pound sterling upon any person convicted of spitting upon the floor of public buildings or upon the street.

THE SIXTIETH BIRTHDAY OF PROFESSOR SENATOR.— The sixth of last December was the sixtieth birthday of Professor Senator, the distinguished Berlin clinician. In honor of the occasion he was presented by his assistants in the clinic and polyclinic with photographs of all his former and present assistants, as well as of the Augusta Hospital, the Charité and the Polyclinic.

THE INDIAN MEDICAL CONGRESS.— The first Indian Medical Congress, was opened in Calcutta on Christmas Eve by the Viceroy of India in the presence of many European and native officials. Surgeon-Colonel R. Harvey, M.D., F.R.C.P., D.S.O., delivered an opening address, in which he eloquently expatiated on the progress in medical and sanitary science made in India. The papers announced to be read before the Congress number 203, and embrace a wide range in medicine, surgery, both general and special, and sanitation.

RECOVERY AFTER EXTIRPATION OF A CYST OF THE PANCREAS. — P. Zweifel (*Cent. für Gyn.*, 1894, No. 27) reports in full the history of a case of cyst of the pancreas for which he had operated, removing the entire cyst with recovery of the patient. Although the hemorrhage is very great is these cases, he was enabled to keep it in check by seizing hold of the tissues with forceps, ligating and cutting between the ligatures. He considers extirpation far superior to drainage, as the convalescence is so much more rapid and satisfactory. The patient four months afterward was in perfect health, and the urine which had been highly diabetic did not show a trace of sugar.

PENNSYLVANIA STATE MEDICAL SOCIETY. — The members of the Medical Society of the State of Pennsylvania who wish to read papers at the meeting to be held at Chambersburg, May 21–24, 1895, will please send their names and the titles of the papers they wish to read to the Chairman of the Committee on Scientific Business, Dr. Charles W. Dulles, 4101 Walnut Street, West Philadelphia. The Committee desires papers to be *absolutely* no longer than ten minutes. At the last meeting a large number of interesting papers were not read because those preceding them were too long, and it is to be hoped that those who prepare papers for the coming meeting will

condense them as much as possible. The laws of the society permit each writer to occupy twenty minutes, but it will be of advantage if the members of the society do not avail themselves of all their privilege.

Proposed Testimonial to Sir Henry Acland. — A movement is on foot to secure a memorial of the work of Sir Henry Acland, on his retirement from the Regius Chair of Medicine in Oxford, which is to take the form of a provision for the increased usefulness of the Sarah Acland home for nurses. £10,000 is thought necessary for the acquisition of a better site and better premises and £1,055 have already been subscribed. Among the subscribers are the Prince of Wales, the Right Hon. W. E. Gladstone, the Earl of Roseberry, etc. Subscriptions will be received by Messrs. Parsons & Co., Old Bank, Oxford; London & County Bank, Oxford; Messrs. W. Wootten & Co., Oxford; Messrs. Gillett & Co., Oxford.

Memorial to the Late Dr. Sturges. — A numerously attended meeting was held on Wednesday, December 19th, at Westminster Hospital, to raise some memorial to the late Dr. Octavius Sturges, the senior physician. The chair was occupied by Mr. George Cowell, F.R.C.S. Eng., senior surgeon to the hospital. The following resolution was carried unanimously, "That this meeting cordially approves of the proposal to establish a memorial to Dr. Sturges, and pledges those present to make every exertion to promote this object." The second resolution, also carried unanimously, was as follows, namely: "That the memorial be a prize, exhibition, or scholarship in connection with the Westminster Hospital Medical School, with which Dr. Sturges was so long associated; a portion of the money raised being set aside for the purchase of four permanent photographic portraits of Dr. Sturges, and to cover the cost of a small photograph to be issued with the forthcoming volume of the hospital reports."

Antitoxin in Denver. — According to the Denver papers, to Denver belongs the distinction of being the first place west of the Missouri River to test the merits of the antitoxin in a severe case of diphtheria. Antitoxin of Berlin manufacture has been tried upon two cases, one mild and one severe, both of which recovered. At the instance of the Arapahoe County Medical Association, enough antitoxin has been imported and brought to Denver to treat seven cases, the expense being defrayed in part by contributions from the members of the association.

Serum Therapeutics in a Vienna Hospital. — At the last meeting of the Vienna Society of Physicians, Professor Widerhofer made a report on the results obtained by the serum therapeutics at the St. Ann Hospital for Sick Children. The mortality from diphtheria at this hospital from 1862 till 1894 varied between 32.3 and 71.9 per cent. The incidence and mortality from diphtheria were generally highest in the months of October, November and December. In October to December, 1891, the mortality was 34.2 per cent., and in the corresponding periods of 1892, 39.0 per cent.; in 1893 it was 44.0 per cent.; and in 1894 only 24.0 per cent. One hundred cases of diphtheria were subjected to the treatment from October to December, 1894. Among them 8 were one year of age, 7 two years of age, 17 three years of age, and the others were between four and six years of age. The patients were kept in hospital as long as Löffler's bacillus could be found. All diphtheritic patients admitted to hospital were injected, even if the admission took place later than on the fourth day of the illness. Patients who died from lobular pneumonia two weeks after they had left the hospital were also grouped with the statistical tables. Of these 100 cases 23 died, 74 recovered, and 3 remained under treatment. On the day of the meeting one of the latter who had had laryngeal diphtheria died from a recent attack of diphtheria. The mortality was, therefore, 24 per cent., while it had been 52.6 per cent. during the nine preceding months of the year.

A Triumph of Orificial Surgery. — An orificial surgeon reports in a recent number of a medical journal a case of "phthisis" cured by the operation for laceration of the cervix. The patient had a severe and long-continued cough and hectic fever, and what the surgeon calls an "interstitial inflammation of the lungs," with infiltration and obstruction of the air cells. "On the day of the operation the temperature reached 97.6°, and never rose above 99° afterwards." Some light is thrown upon the nature of the case by the surgeon's stating that it was a case of phthisis of neurotic origin, and that such cases are often successfully treated by "removing the distal point of pathology." Other successful results of "orificial surgery" are a case in which chronic eczema of the hands was cured by stretching the rectum, and another case of the same disease cured by loosening the "hood" of the clitoris and "clipping of irritated points at the various outlets of the body." Of course all the resources of therapeutic art had been exhausted upon these cases before they came under the care of the "orificial surgeon." A more transparent form of quackery than some of this orificial surgery can hardly be imagined. The author of the article referred to above states that in his observation "many cases of insanity are made worse by the operative procedure, but the secondary effect is most satisfactory." In his opinion "a conservative orificial surgeon should be connected with each of our State hospitals for the insane." This last idea seems an excellent one, if he be connected in the proper capacity, that is, as a patient rather than as a surgeon.

## NEW YORK.

Influenza in New York. — Influenza seems to have become epidemic in the city, but thus far the mortality has not been as great as in some former outbreaks. During the week ending January 5th seven deaths were reported as due to this cause and in the week ending January 12th, twenty-eight. During

the latter week the weather was exceptionally bad, and the total number of deaths in the city was over one thousand.

THE DEATH-RATE FOR 1894. — The death-rate for the year 1894 has been officially announced as 21.03 per thousand of the estimated population, and it is the lowest reported for many years. In the city of Brooklyn 21,183 deaths were reported during the year.

DEATH OF DR. HALLAM. — Dr. Albert C. Hallam, a prominent physician of Brooklyn, died at his residence in that city, January 9th. He was born in Watertown, Conn., in 1845, and studied medicine at the Yale Medical School, from which he was graduated in 1866. All his professional life was passed in Brooklyn.

THE PRODUCTION OF ANTITOXIN SERUM. — A delegation from Philadelphia, consisting of Dr. Beiller, Commissioner of Public Safety, Dr. Shakespeare, of the State Bacteriological Department, and Drs. Ford and Heiser, members of the Philadelphia Board of Health, on January 12th visited the laboratories and stables of the New York Board of Health for the purpose of inspecting the preparation of antitoxin. The visitors were escorted by Drs. Biggs, Parks and Beebe, who showed them the various processes. The Board of Health has appointed as inspectors to furnish antitoxin to the medical profession of the city, Drs. Densell, of the Bureau of Contagious Diseases, and Dr. Huddleston, of the Bacteriological Department.

BEQUESTS TO THE COLLEGE OF PHYSICIANS AND SURGEONS. — At a meeting of the Trustees of Columbia College held January 7th, President Low announced that the College of Physicians and Surgeons had received two very large gifts, one of $350,000 from Cornelius, William, Frederick and George Vanderbilt, who each contributed $87,500, and one of $200,000 from William D. Sloane. The Messrs. Vanderbilt specify that their gift is to be used in the enlargement of the main college building and also of the Vanderbilt Clinic, and the Sloane gift is for the purpose of erecting a new maternity hospital to be connected with the present one and form a part of it. Mrs. Sloane, who is a sister of the Vanderbilts, agrees to furnish funds for the maintenance of the new hospital after it has been built and equipped by her husband. This last gift of Mr. and Mrs. Sloane will make their total donations to the college over $1,000,000, and the same is true of the Vanderbilt contributions.

DEATH OF DRS. FITZGERALD AND ROOF. — Two well-known physicians died suddenly of cardiac disease on January 7th, and January 9th, Drs. Joseph S. Fitzgerald and Stephen W. Roof. Dr. Fitzgerald was found dead on the morning of the 8th at the Dispensary on West 139th Street, where he had attended his clinic the evening before. He was 49 years of age and a graduate of the Georgetown Medical College in the year 1870. Dr. Roof died at the armory of the Ninth Regiment, National Guard, where he had gone for bicycle exercise. He was 51 years of age, and was born at Somerstown, Westchester County, New York. He was graduated at the College of Physicians and Surgeons in 1864. He was for 15 years surgeon of the Ninth Regiment, and at the time of his death was surgeon of the Ninth Regiment Veteran Association.

## Miscellany.

### THERAPEUTIC NOTES.

A NEW ANTIPYRETIC. — Tussol is the name given to a compound of amygdalic acid and antipyrine. Dr. Rehn, of Frankfort-on-the-Main, has used the drug recently in quite a number of cases of whooping-cough in children. He has found it useful in reducing the frequency of the paroxysms and mitigating their intensity, that its action is different from that of simple antipyrine, and that no untoward effects have been observed from its use. It is soluble in water, and as a corrigent raspberry syrup is better than milk. The minimum doses for children are as follows: Under one year of age, from three-quarters of a grain to a grain and a half, two or three times a day; from one to two years, a grain and a half, three times a day; from two to four years, from three grains and three-quarters to six grains, three or four times a day; for older children, seven grains and a half, four times a day or oftener.

CACTUS GRANDIFLORUS. — Mr. Gordon Sharp,[1] after a careful study extending over two years, of the literature, pharmacology and therapeutics of *Cactus grandiflorus*, a claimant for favor with digitalis, concludes as follows: "The literature of *Cactus grandiflorus* is comparatively extensive, but vague, too many properties being ascribed to the drug, and upon too slender evidence; there being no authoritative evidence of a pharmacological or carefully carried out therapeutical kind. The chemistry is as yet unknown, authorities on this subject not even mentioning the presence of a glucoside or alkaloid; and, so far as we can make out after extensive trials, we have been unable to obtain either of those bodies. The most important agents we find to be a series of resins. The pharmacology is necessarily indefinite, one having to work with rather insoluble resins. These contract the blood-vessels of a frog, but this is not of the nature of a digitalis contraction, but depends, I believe, on simple acidity. On the heart of the frog the resins have little or no effect, comparisons being made with digitalis in the same animal. The drug itself would appear to be pharmacologically inert, and there is no proof that it shortens diastole, nor in fact that it has any special action on the heart muscle at all. The therapeutics of the subject I think are clear enough. *Cactus grandiflorus* cannot be included in our list of cardiac drugs. It is not even a simple stomachic tonic, and at most all one can say is that it has some small diuretic action." The few reported instances in which it appears of any service were cases in which it was combined with some effective drug like nux vomica and consequently not of any test value.

[1] Practitioner, September, 1894.

## Correspondence.

### PHOTO-MICROGRAPH *VERSUS* MICRO-PHOTOGRAPH.

SYRACUSE, N. Y., January 12, 1895.

MR. EDITOR: — From time to time it seems to be necessary to call attention to the confusion in the use of the words herein considered. In the *Boston Medical and Surgical Journal* of January 3, 1895, in table of contents of the New York Neurological Society, and in report at page 14, the word "micro-photograph" is not correctly used. Micro-photographs are curios mounted on microscopic slips or in miniature opera-glasses, handles of pen-holders, etc. In a paper read by me before the American Society of Microscopists in 1886, is the following account and definition:

The confusion of the terms "photo-micrograph" and "micro-photograph" has led the writer to try to discover the paternity and original meaning of the more important word, photo-micrograph.

During the past eighteen months, through the kind interest of Dr. R. L. Maddox himself, and through him of the editors of the *British Journal of Photography*, the looked-for paternity has been discovered. Traced to Mr. George Shadbolt, he has acknowledged the child, writing: "I believe I am responsible for drawing attention to the necessity of a distinction between a photographic picture of an enlarged object and the minute photographic picture of a large object, the former being correctly described as a 'photo-micrograph' and the latter as a 'micro-photograph,' in accordance with the meaning of the original Greek derivatives. This will have been in an early number of the *British Journal of Photography*, probably while it was still called '*The Liverpool Journal of Photography.*'"

The exact date of the birth of the word is still somewhat doubtful, but Dr. Maddox writes: "I think we may safely put it at 1859 or 1860, although we cannot put our finger on the page even after much research."

The two acknowledged leaders in photo-micrographic literature in the two great English-speaking countries, Drs. Maddox and Woodward, throughout their writings have used the words in question with the clearly-defined Shadbolt distinction; and the writer trusts, with this historical note recorded in our Proceedings, the American Society of Microscopists, as a body and as individuals, will insist upon the correct usage of these terms.

A photo-micrograph is a macroscopic photograph of a microscopic object; a micro-photograph is a microscopic photograph of a macroscopic object.

Yours truly,
A. C. MERCER, M.D.

### "SCARLET FEVER, WITH ESPECIAL REFERENCE TO CONTAGION AND PROPHYLAXIS."

WEST NEWTON, MASS., January 15, 1895.

MR. EDITOR: — In the issue of the JOURNAL for January 10, 1895, Dr. W. C. Holyoke in an article on "Some Cases of Scarlet Fever with Especial Reference to Contagion and Prophylaxis," refers to an outbreak of scarlet fever in the Rutland Street Home during January and May, 1894.

The doctor attributes the outbreak to some toys which were received at the Home on January 2, 1894, from Newton Centre, where, he says, newspaper reports indicated that scarlet fever was prevalent at the time the toys were collected.

The records of the Board of Health of Newton show that there was no scarlet fever in Newton Centre between July 20, 1893, and January 15, 1894, so that it seems impossible that these toys should have been the cause of the outbreak referred to.

Very respectfully,
FRANCIS GEO. CURTIS, M.D.,
*Chairman Newton Board of Health.*

### METEOROLOGICAL RECORD,

**For the week ending January 5th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—**

| Date. | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather. | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S ..30 | 30.11 | 18 | 28 | 8 | 42 | 67 | 54 | W. | W. | 12 | 8 | O. | C. | |
| M..31 | 30.18 | 26 | 29 | 22 | 61 | 58 | 60 | W. | N. | 5 | 13 | O. | O. | |
| T.. 1 | 30.04 | 26 | 32 | 19 | 66 | 60 | 63 | N. | N.W. | 12 | 13 | O. | C. | |
| W.. 2 | 30.22 | 22 | 29 | 16 | 68 | 62 | 65 | W. | W. | 9 | 3 | C. | C. | |
| T.. 3 | 30.29 | 24 | 31 | 16 | 66 | 70 | 68 | O. | S.E. | 0 | 6 | C. | O. | |
| F.. 4 | 30.08 | 28 | 35 | 21 | 73 | 50 | 62 | W. | N.W. | 8 | 14 | O. | C. | |
| S... 5 | 30.42 | 10 | 17 | 4 | 30 | 43 | 36 | N.W. | W. | 16 | 4 | C. | O. | |
| ☞ | | | | | | | | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

### RECORD OF MORTALITY

**FOR THE WEEK ENDING SATURDAY, JANUARY 5, 1895.**

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,956,000 | 776 | 286 | 13.13 | 23.27 | .78 | 7.28 | 1.43 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 471 | 156 | 11.13 | 17.22 | .42 | 9.03 | .21 |
| Brooklyn | 1,043,000 | 468 | 170 | 16.28 | 24.42 | .22 | 13.20 | .22 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 204 | 70 | 10.29 | 20.09 | — | 8.33 | 1.96 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 119 | 35 | 2.55 | 2.55 | 2.55 | — | — |
| Cincinnati | 325,000 | 131 | 38 | 7.63 | 2.55 | 2.55 | 2.55 | — |
| Cleveland | 325,000 | 103 | 41 | 20.37 | 14.55 | 1.94 | 1.94 | 16.69 |
| Pittsburg | 272,000 | 132 | 52 | 15.20 | 26.60 | 5.52 | 9.12 | .76 |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 33 | 8 | 6.06 | 9.09 | — | — | 6.06 |
| Charleston | 65,165 | 40 | 16 | 2.50 | 10.00 | 2.50 | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 38 | 15 | 18.41 | 10.52 | 2.63 | — | 2.63 |
| Fall River | 92,233 | 23 | 8 | 13.05 | 30.45 | — | 4.35 | — |
| Lowell | 90,613 | 24 | 7 | 12.48 | 12.48 | — | 4.16 | — |
| Cambridge | 79,697 | 23 | 9 | 13.05 | 9.70 | — | 9.70 | — |
| Lynn | 65,123 | 19 | 5 | 10.52 | — | — | — | — |
| Springfield | 50,294 | 18 | 5 | 11.11 | 11.11 | — | — | 5.55 |
| Lawrence | 49,900 | 12 | 5 | 25.00 | 25.00 | 8.33 | — | 8.33 |
| New Bedford | 47,741 | 23 | 10 | 8.70 | 4.35 | — | 8.70 | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 12 | 5 | 8.33 | — | — | 8.33 | — |
| Salem | 33,153 | 11 | 6 | 27.27 | 9.09 | — | 18.18 | 9.09 |
| Haverhill | 32,925 | 9 | 1 | 33.33 | 11.11 | — | — | 11.11 |
| Malden | 30,209 | 3 | 0 | — | — | — | — | — |
| Chelsea | 29,806 | 13 | 2 | 7.69 | 7.69 | — | 7.69 | — |
| Fitchburg | 29,383 | 11 | 3 | — | 9.09 | — | — | — |
| Newton | 28,837 | 12 | 3 | 16.66 | 16.66 | — | 16.66 | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 15 | 6 | 26.66 | 6.66 | — | 26.66 | — |
| Waltham | 22,058 | 8 | 1 | 12.50 | — | — | 12.50 | — |
| Quincy | 19,642 | 11 | 1 | — | — | — | — | — |
| Pittsfield | 18,802 | 3 | 1 | — | — | — | — | — |
| Everett | 16,583 | 5 | 0 | 20.00 | — | 20.00 | — | — |
| Northampton | 16,331 | 4 | 3 | 25.00 | 25.00 | — | — | 25.00 |
| Newburyport | 14,073 | 4 | 0 | — | — | — | — | — |
| Amesbury | 10,920 | — | — | — | — | — | — | — |

Deaths reported 2,845: under five years of age 980; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 394, acute lung diseases 541, consumption 294, diphtheria and croup 218, scarlet fever 43, typhoid fever 33, diarrheal diseases 20, measles 15, whooping-cough 10, cerebro-spinal meningitis 9, erysipelas 5, small-pox 4.

From diarrheal diseases New York 6, Philadelphia and Cleveland 3 each, Fall River and Lowell 2 each, Brooklyn, Washington, Providence and Worcester 1 each. From measles New York 11, Brooklyn 2, Providence and Springfield 1 each. From whooping-cough New York and Worcester 3 each, Brooklyn 2, Philadelphia and Lawrence 1 each. From cerebro-spinal meningitis New York 4, Lynn 2, Washington, Providence and North Adams 1 each. From erysipelas New York and Brooklyn 2 each, Worcester 1. From small-pox Philadelphia 3, Brooklyn 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,458,442, for the week ending December 29th, the death-rate was 18.0 Deaths reported 3,615; acute diseases of the respiratory organs (London) 332, measles 153, diphtheria 64, fever 56, whooping-cough 51, scarlet fever 34, small-pox (London, Birmingham, Liverpool and Hull 1 each) 4.

The death-rate ranged from 6.5 in Croydon to 26.2 in Preston; Birmingham 17.5, Bolton 18.1, Brighton 23.3, Hull 18.9, Leeds 21.3, Leicester 13.2, Liverpool 21.8, London 17.2, Manchester 18.5, Newcastle-on-Tyne 18.3, Nottingham 16.8, Sheffield 19.3, Swansea 15.3, West Ham 13 6.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 5, 1895, TO JANUARY 11, 1895.

The leave of absence for seven days granted CAPTAIN REUBEN L. ROBERTSON, assistant surgeon, is extended twenty-one days.

Ordinary leave of absence for one month and fourteen days, in addition to the extension of leave of absence on surgeon's certificate of disability granted him, is granted CAPTAIN ADRIAN S. POLHEMUS, assistant surgeon.

The leave of absence granted FIRST-LIEUT. CHARLES LYNCH, assistant surgeon, is extended one month.

FIRST-LIEUT. GEORGE DESHON, assistant surgeon, will proceed from Fort Logan, Colorado, to Fort Douglas, Utah, and report for temporary duty.

Leave of absence for three months on surgeon's certificate of disability, is granted CAPTAIN WM. C. SHANNON, assistant surgeon, U. S. A.

Leave of absence for one month is granted FIRST-LIEUT. HENRY C. FISHER, assistant surgeon.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 12, 1895.

AMMEN FARENHOLT, assistant surgeon, detached from the U. S. Receiving-ship "Vermont" and to Naval Hospital, Norfolk, Va.

C. P. KINDLEBERGER, assistant surgeon, detached from Naval Laboratory and Department of Instruction and to the U. S. Receiving-ship "Vermont."

GEO. H. COOKE, medical inspector, in addition to present duties will attend officers on duty at League Island Navy Yard, but residing outside of the yard.

## HARVARD MEDICAL SCHOOL.

### EVENING LECTURES.

The next lecture will be given on Thursday evening, January 24th, at 8 o'clock, by Prof. H. C. Ernst. Subject, "Immunity." Physicians are cordially invited.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. – A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, January 21st, at eight o'clock.

Drs. J. W. Elliot, W. F. Whitney and E. G. Cutler will read on "Pancreatic Hemorrhage."

JAMES G. MUMFORD, M.D., *Secretary*.

## APPOINTMENTS.

At the January meeting of the Board of Managers of the Boston Dispensary the following appointments were made:

DRS. MALCOLM STORER and BENJAMIN TENNEY to the Medical staff at the Central Office; DR. WM. E. CHENERY to the staff of the throat department; DR. EDWARD H. NICHOLS to the orthopedic department, and DRS. E. CHANNING STOWELL and WM. L. EDWARDS, district physicians.

## RESIGNATION.

DR. R. M. HODGES has resigned his position on the Massachusetts Board of Lunacy and Charity.

## RECENT DEATHS.

MYRON LESLIE BAXTER, M.D., of Derby Line, Vt., is dead at the age of fifty-six. He was a graduate of the University of Vermont. He served as surgeon during the Rebellion and was a brother of the late surgeon-general, J. H. Baxter, U. S. A.

DR. HENRY H. CAMPBELL, of Waterville, Me., died recently, aged seventy-four. He was born in Farmington and was educated at Bloomfield Academy and Dartmouth and Jefferson Medical Schools. He practised in Waterville for forty years.

## BOOKS AND PAMPHLETS RECEIVED.

Sixth Annual Report of the Trustees of Morton Hospital for the year ending February 28, 1894.

Ligature of the Spermatic Cord in the Treatment of Hypertrophy of the Prostate Gland. By J. Ewing Mears, M.D., Philadelphia. Reprint. 1894.

Report of the Trustees of the Rhode Island Hospital, Presented to the Corporation at its Thirteenth Annual Meeting, November 8, 1893. Providence. 1893.

The Proceedings of the Fourth Annual Meeting of the Association of Military Surgeons of the United States held at Washington, D. C., May 1-3, 1894.

Atlas of Clinical Medicine. By Byrom Bramwell, M.D., F.R.C.P., Edin., F.R.S., Edin., Assistant Physician to the Edinburgh Royal Infirmary, etc. Volume III. Part 1. Edinburgh. 1894.

Inoculation for Diphtheria and Croup. [Report on the Treatment of Diphtheria and Croup by Means of Hypodermic Injections of Diphtheria Serum. By C. W. Chandler, United States Consul at Havre, France.]

Diagnosis, Differential Diagnosis and Treatment of Diseases of the Eye. By A. E. Adams, M.D, Instructor in Diseases of the Eye in the Post-Graduate Medical College, etc. New York: G. P. Putnam's Sons. 1894.

The Soldier's First Aid Handbook, Comprising a Series of Lectures to Members of the Hospital Corps and Company Bearers. By William D. Dietz, Captain and Assistant Surgeon, U. S. A. New York: John Wiley & Sons. 1891.

Notes on Military Hygiene, for Officers of the Line: a Syllabus of Lectures at the U. S. Infantry and Cavalry School. By Alfred A. Woodhull, Major, Medical Department, Brevet Lieutenant-Colonel, U. S. A. New York: John Wiley & Sons. 1893.

On Chorea and Choreiform Affections. By William Osler, M.D., Fellow of the Royal College of Physicians, London; President of the Association of American Physicians; Professor of Medicine, Johns Hopkins University. Philadelphia: P. Blakiston, Son & Co. 1894.

Report on Typhoid Fever in the District of Columbia, submitted by the Medical Society of the District of Columbia to the Committee on the District of Columbia of the U. S. House of Representatives, June 14, 1894. Washington: Government Printing Office. 1894.

The History of Education in Connecticut. By Bernard C. Steiner, A.M. (Yale), Instructor in History, Johns Hopkins University; Librarian of the Enoch Pratt Free Library of Baltimore. Washington, D. C.: Bureau of Education, Circular of Information, No. 2. 1893.

Points in the Etiology and Clinical History of Erysipelas. The Complicating Conditions, Associated Diseases and Mortality-rate in Erysipelas. The Treatment of Erysipelas. Beriberi, with Report of Cases. By J. M. Anders, M.D., Ph.D., Philadelphia, Pa. Reprints. 1893-94.

A Dictionary of Medicine, Including General Pathology, General Therapeutics, Hygiene and the Diseases of Women and Children. Edited by Richard Quain, Bart., M.D., Lond., etc., and others. With an American appendix. New edition. Two volumes. New York: D. Appleton & Co. 1894.

Physiology for Beginners. By M. Foster, M.A., M.D., F.R.S., Professor of Physiology in the University of Cambridge, and Lewis E. Shore, M.A., M.D., Fellow of St. John's College, Cambridge, and Senior Demonstrator of Physiology in the University of Cambridge. New York and London: Macmillan & Co. 1894.

A Synopsis of the Practice of Medicine for Practitioners and Students. By William Blair Stewart, A.M., M.D., Lecturer on Therapeutics; late Instructor on Practice of Medicine in the Medico-Chirurgical College of Philadelphia; Demonstrator in the Philadelphia School of Anatomy, etc. New York: E. B. Treat. 1894.

The Physiology of the Carbohydrates; Their Application as Food and Relation to Diabetes. By F. W. Pavy, M.D., LL.D., F.R.S., Fellow of the Royal College of Physicians; Consulting Physician to and formerly Lecturer on Physiology and on the Practice of Medicine at Guy's Hospital. London: J. & A. Churchill. 1894.

The History of Education in Delaware. By Lyman P. Powell, A.B., Fellow in the Wharton School of Finance and Economy in the University of Pennsylvania, and Staff Lecturer on History to the American Society for the Extension of University Teaching. Washington, D. C.: Bureau of Education, Circular of Information, No. 3. 1893.

# Original Articles.

## A CONSIDERATION OF SOME OF THE INDICATIONS FOR OPERATION IN HEAD INJURIES.[1]

BY WILLIAM N. BULLARD, M.D.,
*Physician to Department of the Diseases of the Nervous System, Boston City Hospital.*

THE subject of the indications and contra-indications for operations in head injuries is so large that it will be possible to cover only a small portion of the ground this evening, and I shall therefore confine myself to presenting to you certain points which seem to me to have not yet been appreciated at their full value by the profession. For the purposes of this paper it will be necessary to limit ourselves to the consideration of some of the indications for *immediate* operation in cases of head injuries in *adults*. By immediate operations we understand such as are performed within at least twelve hours of the time of the injury. As a rule, the operations under consideration are to be performed within as short a time after the injury as possible.

The indications for later operations, that is, more than twelve hours after the injury, differ very considerably from those for immediate operations, and are, on the whole, much easier for determination. These we will not consider to-night.

The symptoms on which we rely in order to decide on the advisability of immediate operation in cases of severe head injury may be roughly divided into four groups: (1) extracranial or cranial local symptoms, (2) intracranial local symptoms, (3) extracranial general symptoms, (4) intracranial general symptoms.

(1) The direct local symptoms, those which are immediately due to the injury and are perceptible to the surgeon. Such are wounds, ecchymoses, evident fractures of the cranium and all other local and evident conditions due to direct injury in any part of the body, which have any bearing on the diagnosis or prognosis. These are *local extracranial* or *cranial* symptoms.

(2) The intracranial or indirect local symptoms. In this group I would include all localized symptoms which are to be referred to intracranial conditions. Such are the various forms of paralysis, partial or total, of local spasms and certain conditions of the pupils. Symptoms of this group point more or less distinctly to affections of special portions of the intracranial organs, and so far as they do so are *localizing*.

(3) The third group is a somewhat indefinite one. It includes such general symptoms and conditions as may exist after any injury without special relation to intracranial conditions. Under this heading I should place the general strength or weakness of the patient and the condition of the pulse. I have called the symptoms of this group the extracranial general symptoms.

(4) The intracranial general symptoms. This includes all general conditions presumably due to intracranial conditions. Such are the states of cerebral activity or of cerebral repose; consciousness, semi-consciousness, unconsciousness, coma and delirium. These may be reasonably referred to intracranial conditions caused by the injury and may be fairly considered as the *index* of these conditions.

[1] Read before the Surgical Section of the Suffolk District Medical Society, December 5, 1894.

The direct external symptoms are too well known to every surgeon to render their discussion valuable. The localizing symptoms, though often of great value in combination with other symptoms, in themselves rather determine *where* we shall operate than *when* we shall operate.

I propose this evening to pass over the symptoms which I have placed in the first three groups, and devote myself principally to the consideration of those general symptoms indicative of intracranial conditions which we have mentioned in the last group.

It is largely from the general mental condition of the patient, meaning by this term those states or conditions which we have before enumerated, consciousness or unconsciousness, delirium, quiet or irritation, that the indications or counter-indications for immediate operation in head injuries are in many cases to be drawn. We will now, therefore, consider the indications for and against immediate operation in cases of severe head injury in adults where the external signs and the localizing symptoms do not exist or do not afford sufficient indication.

The *primary* indication for immediate operation in severe head injuries is *increased intracranial pressure*. The question of operation in these cases depends on the degree of this pressure.

Whenever it has reached a certain point operation is imperative, unless otherwise contra-indicated. This point is the condition of deep stupor where the patient cannot be roused by supraorbital pressure. When, however, the unconsciousness is deep, but the patient can still be roused by passive movements or in other ways, the indication is less definite. Yet in all such cases, and they form a large proportion of those entering the large hospitals, we must be largely guided in our action by the depth of this unconsciousness.

Cases of this kind, as a rule, grow more unconscious during the first few hours, so that if we wait we may often be obliged to act rapidly later. On the other hand, the lighter cases of unconsciousness, which do not tend to become more unconscious, should not be operated upon at once. In any doubtful case the most careful watch should be kept for any increase in the degree of unconsciousness, and as soon as this has been thoroughly determined operation should be performed.

In all cases, whether only lightly or deeply unconscious, where there has been a rapid increase in the depth of unconsciousness, or where there is a distinct increase of paralysis of the extremities within the course of a few minutes or hours after the injury, operation should be performed. Gradual increase of paralysis and gradual increase of unconsciousness becoming apparent shortly after a head injury, suggest intracranial hemorrhage, usually middle meningeal, and demand immediate surgical interference in all persons under forty years of age. In persons much above this age, in cases where the external injury is slight or doubtful, the question of the presence of slow hemorrhage from some of the deep vessels of the cerebrum (ingravescent apoplexy) must be considered.

When together with unconsciousness there exists cerebral activity or irritation, as evidenced by delirium, it has usually seemed to me more advisable to wait and not operate at once, although some of these cases have fatal terminations. On the whole, I consider delirium as rather a sign for delay than for immediate action. Where delirium without unconsciousness exists, it con-

tra-indicates operation or indicates that we should not operate at once.

Localized cerebral irritation, as evidenced by clonic convulsions, either general or local, is not a common sign of head injury (surgical). In cases where there is no history, convulsions render it probable that the case is non-traumatic, or that some ordinarily non-traumatic condition has been set up by the trauma. These are the results of clinical experience.

It would seem scarcely needful to state that in each individual case we must consider the special symptoms and indications. In those cases in which there is no evidence of paralysis, and no pupillary symptoms exist, we rely on the general condition of the patient. The important signs are two: (1) the depth of unconsciousness, (2) the increase of unconsciousness.

(1) It is hard to define exactly the degree of unconsciousness at which — there being no special contra-indication — operation is absolutely demanded. In most of the more doubtful cases we have some secondary symptoms (fracture, paralysis, pupillary conditions) to guide us. Where these do not exist, we must rely to a certain extent on the general appearance of the patient, his pulse, apparent strength and respiration. If his strength is failing but he can still bear operation, operate at once. As a rule, we should advise operation in any case where the patient (adult) could not be roused by supraorbital pressure and where the pupils did not react to light.

(2) When the unconsciousness, light at first, rapidly becomes deeper, especially if this be accompanied by any commencement or increase of paralysis, we should at once suspect intracranial hemorrhage, usually middle meningeal.

Where an unconsciousness, deep from the beginning, becomes slowly and very gradually deeper, without an increase of paralysis of the face or limbs, we can only diagnosticate an increase of intracranial pressure, and cannot determine whether such increase be due to hemorrhage or not.

What now are the pathological conditions existing in these cases? I believe that wherever the conditions of lasting unconsciousness, stupor and coma exist, we have to deal with an increase of intracranial pressure. This conclusion is based on the results of many operations and observations.

The cause of this increase of intracranial pressure is not altogether plain. It is *not by any means*, as is sometimes supposed, *always* a pressure from intracranial hemorrhage. In fact, I am inclined to believe that pressure from this cause is much less frequent than is supposed. It takes a considerable quantity of blood to produce from outside the brain substance an active pressure on the brain, even when the pressure is produced rapidly.

In many cases, moreover, on operation we have no evidence suggestive of any severe hemorrhage, and yet the increased pressure is apparent. Again, this increased pressure in all probability occurs in the cases of so-called concussion, and in other mild cases where unconsciousness exists but where there can be no question of any profuse hemorrhage. What seems to occur is this: The brain in some way acts as a sponge, and swells and pushes so hard against the dura as to inhibit or diminish pulsation. If in these cases the dura is incised, the cerebral pulsation again becomes visible, and the relief to the patient is instantaneous and extraordinary.

And here let me state that after a tolerably large experience in these operations I have never seen a case in which the incision of the dura has caused the slightest injury to the patient, or has apparently caused any untoward symptoms whatever. The cause of this brain swelling I will not discuss to-night, because it is a difficult subject, not well understood, and, moreover, has immensely broad bearings in various directions. It occurs undoubtedly in certain cases of apoplexy and, in a chronic form, in many intracranial diseases. This or something analogous, the so-called acute edema of the brain, is the immediate cause of death in cases of acute alcoholism, of sunstroke and perhaps (in its chronic form) in uremia.

Let us now pass to certain surgical considerations in operations such as we are discussing. It is evident that unless the operation be of a suitable and efficient character, its value is likely to be much impaired and the result not conformable to our expectations. It is as important to know *how* to operate as it is *when* to operate or *where* to operate. It may seem a little presumptuous for one who is not a practical surgeon to attempt to speak on this subject, but I have for years followed these operations with care, and feel justified in laying down certain rules. These are:

(1) Be sure that the opening in the cranium is sufficiently large. In the early days of these operations, and to a certain degree even to the present time, there has been a tendency on the part of the surgeon in exploratory trephining or opening of the cranium to make his aperture too small.

This is a serious matter, both because it prevents the surgeon from seeing and from working inside the cranium at his ease, and still more because it prevents him from opening the dura sufficiently, and efficiently relieving the intradural pressure. I believe that in the ordinary case nothing smaller than a one-inch trephine should be used, and then the opening enlarged, with bone forceps, if possible. An opening, as a rule, to be efficient should be at least two inches by one. Of course it makes no difference how this opening is made providing that it is made as *quickly* as possible, with as little jar as may be to the patient and without laceration of the dura.

(2) The second point to be emphasized in these operations is always to open the dura where there is evidence of intradural pressure. There is no more danger in opening the dura under proper antiseptic or aseptic precautions than there is in opening any other serous cavity. The superstition that the dura was a structure which it was exceedingly dangerous to meddle with dies hard, and still lingers consciously or unconsciously in the minds of many surgeons and physicians. I can only repeat that having closely observed for a number of years a very considerable number of patients in whom the dura has been opened, either intentionally or otherwise, I cannot recall a single case *in an adult* where any essential harm was produced. In a very large proportion of cases there is neither any perceptible shock at the time, nor are any future harmful effects (of no matter how slight a character) perceptible.

(3) Remember that in these operations time is an important factor. Do what has to be done as rapidly as possible. In children many deaths are caused in these operations by loss of time. In adults the consequences are not, as a rule, so serious, nevertheless next to asepsis time is probably the most important

factor in the success of an exploratory cranial operation.

(4) In an exploratory operation, where it is not certain that a large extradural clot exists, look out for the middle meningeal artery. Remember that it runs in a deep groove on the inner surface of the cranium, and that in trephining directly over it, unless the dura be separated in some way from the cranium, the artery is likely to be cut by the trephine before the bone has been completely sawn through. Again, remember how closely the dura is or may be attached to the inner surface of the cranium, and that in cutting with bone forceps in the course of the artery or its branches, great care must be taken not to tear or cut the blood-vessel.

(5) It is perhaps scarcely necessary to mention that all cases of intracranial hemorrhage with which the surgeon has to deal (that is, all cases from superficial vessels, from sinuses, etc.) can be stopped by pressure. Ligating the vessel when possible is preferable, but sometimes it is not possible.

(6) The last point I wish to speak of is a somewhat doubtful one in my mind, and I only desire to call your attention to it. This is the length of time during which packing should be left in the intracranial cavity. I am inclined to think that the present tendency is to remove it too early.

Gentlemen: I thank you for your attention, and I hope that you will pardon my presumption in speaking on surgical subjects before a surgical society.

## ACUTE GONORRHEAL RHEUMATISM.[1]

BY HOWARD LILIENTHAL, M.D., NEW YORK,
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Gonorrhea with its various complications has, of late years, been the subject of much research by investigators all over the world. Much has been learned of the pathology and etiology of the various forms of the disease and of the life history of its determining organism, the gonococcus. We have been taught how to recognize the germs with the aid of the microscope, how to cultivate them artificially in all their virulence, and how to prove them to be gonococci by showing that inoculations of the urethræ of dogs with the culture is followed by gonorrhea (Turró). Cultures of the germs have also been obtained from the fluids and tissues of various parts of the body afflicted by inflammation coincident with gonorrhea elsewhere.

The subject of this paper is one of the complications of gonorrhea which, though unfortunately far from rare, has until very lately been so misunderstood that many have even gone so far as to doubt its existence. Some believe that the disease is usually due to germs other than those of gonorrhea, and they are inclined thus to regard it as a pyemia. Doubtless there are instances of mixed infection; and the examination of a few such cases will go far to form an individual opinion. Writers and observers are not wanting who take the ailment to be of nervous origin, vaso-motor in character (Lewin). It is hard to believe that any one educated in the modern way can reach such a conclusion. If the disease were a pyemia, we should more often see other signs of pyemia, such as multiple abscesses. This complication is, however, a very rare one; and when it does occur, it seems to be the result of an infection grafted upon the gonorrheal rheumatism, and not its cause or a coincident effect from a common cause. It is not in every instance practicable to give the "ocular proof" in this disease, but a good clinical diagnosis may nevertheless usually be made; and often in just such cases treatment is most needed, and the patients are most anxious for an opinion and prognosis.

My belief is that such a disease as gonorrheal rheumatism exists; that it is invariably caused by the gonococcus; and that in the most severe cases there is a group of symptoms so characteristic that one may repeatedly make a working diagnosis without even the corroborative evidence of coexistent gonorrheal urethritis. The discovery of gonococci in secretion or tissue is proof of gonorrhea; but the failure to discover them does not prove absence of the disease, especially if clinical symptoms be present. It has lately been learned that the germs may undergo changes of involution which result in forms of the organism quite unlike gonococci in appearance and in staining properties, and yet on culture and physiological test the usual forms are again evolved (see Touton).

The part played by the male urethra in the production of gonorrheal rheumatism has, I believe, been overestimated, and the frequency of the disease in females, underestimated. In these days of accurate investigation cases are not wanting where other mucous membranes have been the source of the rheumatic metastasis, for example, the conjunctiva (Kammerer).

Gonorrheal rheumatism has been classified according to the tissue involved, whether joint, tendon-sheath or bursa; and it may be acute or chronic. It is not, however, my intention to enter here upon an exhaustive description of the malady in its various forms, but rather to confine myself to its more acute and serious aspect from a purely clinical point of view.

Acute gonorrheal rheumatism is usually described as a mono-articular inflammation, with considerable pain, but not so much pain nor constitutional disturbance as is noted in ordinary acute rheumatism (Keyes). It is my belief that no inflammation causes more exquisite and demoralizing pain than the one under discussion. I have in several cases been able to guess correctly the nature of the trouble from this one symptom, and the history of its persistence for more than a few days. This, too, in spite of the wilful misrepresentations of the patients. Not long ago I saw a young man of nineteen who had been for about four weeks confined to his bed with an arthritis of the right knee. He had lost much flesh and strength. His temperature had been high (104° F.), but for some days had been below 101° maximum. There was great swelling of the knee, with evident disintegration of the joint. The entire neighborhood was boggy and semi-fluctuating. The gentleman in charge was an orthopedic surgeon, and I was called to give an opinion as to the advisability of excision of the knee. On approaching the patient I saw that he was completely demoralized. He shrieked with pain at the lightest touch, and had to be anesthetized to be properly examined. His physician had made up his mind that bone disease existed, and suggested that it had perhaps gone so far as to demand amputation. My diagnosis was gonorrheal arthritis, with destruction of the joint. This opinion I held principally on account of the peculiar character of the pain. The patient insisted that he had no gonorrhea, and this in spite of a suspicious

[1] Read before the "Warren Club," December 4, 1894.

moisture at the meatus. Mainly on account of this action on the part of the patient, an intelligent young man, I finally agreed to an exploration by incision. No pus was found, but the joint was filled with a gelatinoid mass of granulation tissue, the bones being perfectly healthy. An examination of the joint contents by a pathologist showed numerous diplococci, which that gentleman believed to be gonococci. Cultures were not made.

The case went from bad to worse, and finally came to amputation on account of general septic intoxication, the patient then making a rapid recovery. Autopsy of the joint showed disintegration of the articular and peri-articular structures, but with no bone involvement and scarcely any erosion of the cartilages. I believe excision of this knee would have been fatal.

Another instance illustrating diagnosis without immediate corroboration by the history of urethral blenorrhea is that of a physician of my acquaintance. I found on my table one day a note, the chirography very shaky, saying, "Call at once. Wrist lame." When I saw my colleague, he was in great pain, which had its principal seat in the sheaths of the extensor tendons of the right thumb, where I found a reddened sausage-like fluctuating swelling. The patient was a man of education, but of a phlegmatic, undemonstrative temperament, being usually one of the most insensitive of men as to physical pain; but now the mere pointing of a finger at the swelling made him nervous and apprehensive. There was also some pain in the wrist-joint, and there was a moderate elevation of temperature. I at once inquired whether or not the patient had urethritis, but met with an unqualified and emphatic denial. The arm and hand were put upon a flat splint, and treatment with oil of wintergreen and soda bicarbonate was commenced.

The progress of the case was slow and in a short time I was, in spite of the doctor's word to the contrary, quite sure of the character of the disease. Recovery was finally completed; and some months afterward my patient confessed that he had had a first attack of gonorrhea, and that two days before the rheumatism set in and, while the urethritis was still acute, he had cut his own meatus — an interesting fact because of the probable connection between the rheumatism and the trauma.

Gonorrheal rheumatism is not usually mono-articular, though occasionally a single joint is involved, and there is nearly always more or less disease in the neighboring tendon-sheaths and bursæ. This circumstance is probably the explanation of Charcot's three points of tenderness when the knee or the ankle is involved. These three tender points are almost pathognomonic of gonorrheal infection. They are all in the sole and at the spots where the body weight is principally borne; one at the heel directly under the calcaneum, one under the head of the first metatarsal, and one under the head of the fifth metatarsal. This tenderness makes a characteristic clinical picture. It is due to inflammation of the bursæ situated in the above-mentioned places. Another bursa, the retro-calcanear, between the calcaneum and tendo-Achillis is also commonly the seat of pain, constituting the majority of cases of so-called Achillodynia (Touton).

One important factor in the determining of an attack of rheumatism is direct injury to a part by a blow or strain. The symptoms in the second case cited above, for example, came on the morning after rather long-continued billiard practice, when the very group of tendons involved was excessively exercised. This is rather a rare region to be the seat of gonorrheal rheumatism; but the patient had, very likely, invited the onset of the trouble by incising his urethra, and the overstrain merely determined the location of the rheumatism.

Whenever, after a contusion or fracture, there is excessive, long-continued and increasing pain, with elevation of temperature, this complication should be thought of, be the patient male or female.

The diseases nearest resembling gonorrheal rheumatism are acute articular rheumatism and surgical tuberculosis. The principal clinical differences between gonorrheal and acute articular rheumatism are that in the ailment under discussion there is an absence of that profuse acid-smelling perspiration which characterizes ordinary rheumatism; that the pain is decidedly more severe; and that, although several regions in succession may become infected, there is no abatement of symptoms in those first diseased. The three points of tenderness in the sole, if knee or ankle is involved, and the slow instead of rapid improvement under salicylates, completes a sufficiently characteristic picture. The presence of endocarditis is not sufficient evidence to exclude gonorrhea as a cause, for recently cases of gonorrheal cardiac affections have been reported. Indeed, gonococci have been found by Councilman in the myocardium and pericardium; while Chiasso has, in a case of rheumatism, found them in the pleural cavity.

In the male the presence of sexual blenorrhea with gonococci is additional and weighty evidence, though not conclusive without the rest of the clinical appearances, for there is no reason known why a man with clap may not have ordinary rheumatism. In the female this corroborative evidence is often wanting, or with difficulty secured; for the discharge may be in the vagina, cervix, uterus, or even in more remote regions. It is always best to make a diagnosis in this disease without probatory puncture, though if there is question as to the advisability of operative procedure, this precaution should not be neglected. One unpleasant characteristic of the malady is its resentment of surgical operative interference. Trauma is one of the determining causes of an attack, and a joint which is becoming quiescent preparatory to a peaceful anchylosis may on forcible breaking up of adhesions, or on incision, become violently inflamed, and then progress, in spite of all treatment, to a termination fatal to limb or even life. In making the puncture it is best, in addition to the usual precautions, to make a minute incision through the skin with a scalpel, and then to insert the aspirating-needle so as to avoid passing the instrument through a possibly unclean skin and carrying the infection to the deeper parts. This exploratory puncture is most often required in those cases which have become chronic, where there is perhaps a vague history and no urethral discharge, and where other disease may be suspected. If the puncture into a much distended and fluctuating joint yield pure pus, I have learned to regard the case, especially if of short duration, as decidedly hopeful, not only as to the speedy recovery but also for a movable joint. Of course, thorough drainage is indispensable. I believe this class of cases to be usually due to mixed infection. Gonorrheal rheumatism generally fills the joint and

its neighborhood with plastic exudate, not pus, just as in the gonorrheal peritonitis so often met with in the female pelvis the exudate is more often solid than purulent; and this is in very clear contrast with peritonitis of the ordinary septic type where there is, as is well known, much pus formation.

The prognosis in all the more acute gonorrheal rheumatisms is grave. Even with the greatest care the inflammation may go on to the destruction and anchylosis of joints, or even to a general septic intoxication necessitating, as in the first case here mentioned, the most incisive measures to preserve life. To be sure, the disease may become chronic, and turn into a more or less quiet form of hydrarthrosis; but even here there often are exacerbations and perhaps infection of another kind. It is probable that such a joint may later become tubercular.

And now as to treatment. Unfortunately, although the science of medicine has made great progress in the last quarter-century, the noble healing *art* has hardly kept the pace. Yet to know the cause of an ailment is surely the first step in the right direction; and as in the past the discovery of a cause has always led to more intelligent and satisfactory therapy, so in the near future we may hope for a method for the cure of gonorrheal rheumatism. Up to the present our knowledge of treatment consists mainly in knowing what not to do. To be sure, various drugs, such as mercury, potassium iodide, the salicylates, alkalies, oil of wintergreen (itself salicylic), and many others have been proposed and tried. I must say I have a preference for oil of wintergreen and soda bicarbonate, with considerable attention to the use of the alkalies. Though Finger says that alkali predisposes to cystitis and that the weak acid of the normal urine kills the gonococcus, I seem to have one argument for my treatment in the recent investigations of Turró, who has found that though the germs will grow on alkaline human blood-serum, and will not grow on alkaline agar or gelatine, an excellent and virulent culture may be obtained from acidulated or unneutralized media, and that the urethræ of dogs may be infected with this culture. I shall, therefore, continue the alkali treatment until it has been really shown to be harmful or useless. Drugs aside, however, the diseased joint should be at once put at rest on a splint of such proportions that as much comfort as possible may be obtained. Gentle compression over a dressing of ichthyol ointment (20 per cent. to 50 per cent.), or over mercurial ointment, or over an ordinary wet dressing should be applied by bandage. The urethra or other focus of infection should be carefully treated, and the discharge decreased. The bowels should be regulated, and a minimal quantity of opium used. If the disease seems to be manageable, gentle massage is valuable during convalescence; but if anchylosis is believed inevitable, it should be assisted by perfect fixation in plaster-of-Paris. These patients usually become much run down by the disease, and should have from the first tonic and stimulant treatment. The so-called urethral hygiene, with starvation diet, will here do far more harm than good; on the contrary, the indication is for forced feeding. Meat, eggs, milk and its preparations, besides other simple and easily digested food, should be forced upon the patient every two hours or oftener. In many cases small doses of alcoholic stimulants will be well borne. An accurate record should be kept of all nourishment taken; it is more important than pulse or temperature. Lastly, avoid, if possible, all operative procedures. Abscesses must, of course, be evacuated; but do not be deceived by appearances and interfere in the acute stage for any other reason. This rule applies to those violent forms of the disease which are the subject of this paper, and does not refer to the later conditions of chronic deformity where gonorrheal rheumatism as such no longer exists.

For the sake of emphasis I have reserved the discussion of prophylaxis until the end. This part of the subject may be divided into two portions, namely, the prevention of gonorrheal infection and the prevention of the complication of gonorrheal rheumatism in those already infected. With the first of these heads I shall not here concern myself, because in all its aspects it has been often and thoroughly discussed. On the second head, however, the prevention of the complication in those already having blenorrhea, I wish to say a few words.

Knowing that the acquisition of a clap is a great misfortune, and that it is the sole cause of many and serious complications, I believe in an abortive treatment whenever this promises success. To my own satisfaction I have proven that if properly carried out the abortive treatment of clap may succeed, and without danger of aggravating the disease. Given a case of very short standing, where the discharge consists of mucus with some pus cells, first examine with microscope for gonococci. Having found them and settled the diagnosis, the patient is requested to urinate. Now, take an endoscope of such size as will very easily enter the meatus, and having lubricated with a little glycerine, examine the first *half-inch* of the urethra by daylight, without inserting the instrument deeper than is absolutely necessary. If no line of demarcation be seen, remove the instrument; wash it, and insert it for one inch, and examine again. Probably now a more or less distinct line of demarcation can be made out between the diseased anterior part and the deeper healthy mucous membrane. Carefully wipe out with dry cotton on an applicator, and then apply thoroughly by means of another swab a ten-per-cent. solution of nitrate of silver. The swab must enter the urethra a little farther than did the mandrel of the endoscope, and all parts of the canal from this point to the meatus must be thoroughly touched. No cocaine should be used. The patient must now go to bed and take bicarbonate of soda in ten to fifteen grain doses every two hours, drinking water at the rate of one six-ounce tumblerful every hour. The following day the discharge should again be examined; and if gonococci be found, another endoscopic examination should be made. If the diseased area extends deeper than before, it is not worth while to repeat the treatment, but otherwise silver may again be applied. If the germs vanish and then reappear in small numbers a day or two later, the application may be again made. It has been my fortune to try this treatment only twice, but both men were cured so promptly, all symptoms disappearing within two days, that I shall follow this method in other suitable cases. If it is to succeed it must be employed very early, for gonococci make their way rapidly to the deeper parts, von Crippa having found them in the fluid of the edematous tissues around the frenum five days after the attack began.

I am well aware that the abortion of a clap by means of argentic nitrate is a very old method. I also know that in one or another form it has been often

tried and often abandoned. The old method of injecting the silver is certainly dangerous, because if there is a failure to abort the malady we have caused a chemical irritation of a considerable portion of the urethral canal with a consequent catarrh, which makes the mucous membrane especially sensitive to attack by microbes. The endoscopic tube, however, renders it possible for us to confine our attentions to the diseased portions, and if properly used the method cannot be blamed for an aggravation of the gonorrhea.

It is not necessary for me to say anything concerning the local treatment of an ordinary clap; but, as in gonorrheal rheumatism, I believe that strict "urethral hygiene" may be overdone and too little attention paid to the patient himself. Locally, as in all acute inflammations where an antitoxic remedy is unknown, we must depend upon rest and the healing power of Nature. Meantime, however, by good food and plenty of it we may help our patient to resist the systemic intoxication with its anemia and general lowering of the vital forces which results from absorption of the poison generated by the gonococcus.

## Clinical Department.

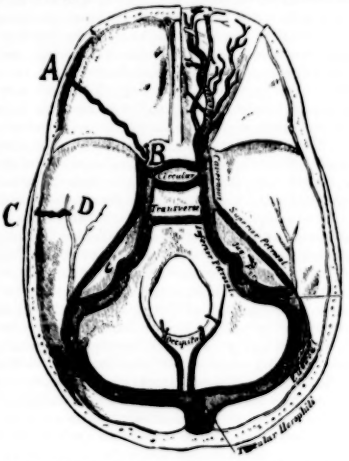
### A CASE OF FRACTURE OF THE BASE OF THE SKULL, INVOLVING THE CAVERNOUS SINUS; OPERATION; RECOVERY.[1]

BY F. S. WATSON, M.D., BOSTON.

T. H. O'N., nineteen years old, was struck on the head by a brick thrown from a height of twenty feet above him. He fell, but immediately arose, again falling on his knees, however, an instant afterward. He then got up and walked across the street, and was, he says, fully conscious for one hour; the only pain he felt was in the right eye and above it. At the end of an hour he gradually lost consciousness, and knew nothing until the following morning.

He was brought to the hospital three hours after the accident, and was seen within the next half-hour by Dr. Bullard, whose record of his condition is as follows: "The patient is unconscious, but can be roused so as to make motions with the limbs. There is no hemorrhage from the ears, nose or mouth. The left pupil is dilated and does not react; the right pupil is normal. There is slight paresis of both extremities of the right side. Sensation is universally dulled, but this is thought to be due to unconsciousness. The knee-jerks are present and normal. Pulse 60, and of fair strength. During the next half-hour the paresis of the right extremities steadily increased, and the patient became more profoundly unconscious."

*Operation.* — A very slight, simple depressed fracture could be felt an inch to the left of the median line and just anterior to the coronal suture. The site of injury was exposed by a large semicircular incision and reflecting a skin-flap. All hemorrhage was prevented by transfixing its base, previous to incision, with a strong needle set in a handle (the needle being about eight inches long), and compressing the base of the flap with a piece of stout tape passed around it and drawn tight on the shaft of the needle. This familiar manœuvre of cutting off the blood-supply by transfixing the base of the flap serves a good purpose when applied to the skin-flap made to expose the cranium by saving time. The skull was trephined over the site of a very slight depressed fracture. A large blood-clot lay beneath the opening. The fracture was seen to extend in two radiating lines towards the base of the skull, anteriorly to the outer angle of the orbit and laterally downward toward the petrous portion of the temporal bone. On removing the clot beneath the trephine opening, profuse hemorrhage occurred. A channel half an inch wide was rapidly cut through the bone along the anterior line of fracture toward the outer angle of the orbit, with a rongeur, and was enlarged at its lower end. A large blood-clot was then seen to occupy the whole temporal region and to extend forward and backward beneath the base of the brain. On removing the clot the patient's respiration, which had become very slow, shallow and irregular, at once resumed its normal character. The finger could now be swept over the orbital plate, and the line of




AB and CD show the lines of fracture on the inner surface of the skull. (Gray's Anatomy.)

fracture could be clearly felt extending diagonally across it to the sella Turcica. From this point arose a profuse hemorrhage, which so far as could be determined originated at the point of junction of the ophthalmic vein and cavernous sinus. The bleeding from this place was controlled by firm packing with iodoform gauze. The posterior radiation of the fracture could also be clearly followed from the depression on the vertex well down toward the petrous portion of the temporal bone. From this region also a brisk hemorrhage was going on, probably from a branch of the middle meningeal artery. This was likewise controlled by firm pressure with iodoform gauze. The ends of the gauze were led through the lower end of the opening in the skull, and through a counter-opening in the base of the skin-flap, the edges of which were united with silk sutures. The packing was not removed until the tenth day. The patient made a rapid and uninterrupted recovery. On the morning following the operation he was perfectly intelligent, had no pain or other symptom. In twenty-four days he was out of bed, and

[1] Read before the Surgical Section of the Suffolk District Medical Society, December 5, 1894.

left the hospital on the twenty-eighth day, well. Other than weakness and some pain over the left eye and across the forehead, he has suffered no inconvenience since. He has, as you see to-night, the appearance of good health. He tells me, however, that on trying to resume his work two days ago he was obliged to give it up on account of being dizzy and easily flustered. (The patient was shown to the Society.)

## A CASE OF FROG-SKIN GRAFTING.

BY GEO. SEELEY SMITH, A.M. M.D., PROVIDENCE,
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THE restoration of the integrity of the skin through grafting will always prove of interest to the medical profession, restoring, as it does, the epithelium of the part, and thereby preventing the deformity, and loss of function which would follow if the process of granulation were allowed to mature.

The following is the report of a case where both human epidermis, and the skin of the frog, were used for the purpose, and in some ways it is one of peculiar interest.

Necessity compelled me to look about for a substitute for human skin, and it was fortunate that my resources were thus taxed, for the subsequent course of the case showed that frog-skin not only *took* in a larger percentage of cases than human skin, but that its ultimate growth and proliferation was more rapid.

In August of 1893, while in Cleveland, O., I was *called* to see a case of very deep and extensive burn in a child five years of age. On July 18th, four weeks previous to my first visit, the boy's clothing caught fire, and before the flames could be extinguished the entire thickness of the skin had been destroyed over a large area of the trunk, face and neck.

The part involved may be traced by a line running from the thyroid cartilage, down the median line of the body to within an inch of the umbilicus, and from here following the band of the trousers around to the median line of the back; up to the external occipital protuberance; to the malar bone, on the left, including a portion of the ear; diagonally across the face to the right corner of the mouth, and completing the area by connecting this point with the thyroid cartilage.

I found the entire surface covered with healthy granulations that bled freely upon the slightest touch. In other respects, however, the case had received but little attention, a fact which was emphasized by the fold of the axilla being firmly adherent, through neglect to separate the parts in dressing.

As a consequence the arm was firmly bound down, and my first care was to break up these adhesions under ether.

It being evident from the first that healing by granulation would not only require many months, but would eventually result in considerable deformity, it was decided to resort to grafting. Here the first difficulty presented itself, as the surface was so extensive, and the boy in such a weak and nervous condition, that any attempt to have taken the necessary epidermis from him would have been highly imprudent.

It being very difficult to secure human contributions, I finally determined to resort to experiment, and frog-skin was tried, with the gratifying results already alluded to — results far beyond my fondest hopes.

On the 29th of August, operations were begun by planting upon the chest twenty pieces of skin, each a quarter of an inch square. They were placed in two rows of ten each, each graft being separated from its neighbor by a space of half an inch. In two days the skin had become identified with the granulating surface, and in five days the grafts had lost their original color, and each had sent forth embryonic epithelium meeting that of its neighbor.

This gave to the surface much the appearance of tile work. The embryonic epithelium was transparent at first, giving to the granulations underneath a slightly glazed appearance. In time this epithelium lost its transparency and then assumed the character of normal skin. In the course of a week the original grafts were dissolved leaving, instead, an embryonic epithelium such as has just been described.

Pieces were taken from the belly and legs of the frog, and also from the *back*, in cases where the frog was small, and the skin not too thick. In every instance the skin lost its original color in from five to ten days. It was found that the comparatively thick skin from the *back* took more satisfactorily than that from the belly or legs.

The case was dressed and grafted every second day, and on each occasion from twenty to eighty frog-grafts, and from ten to twenty human-grafts were used. The latter were very small (about one-sixteen of an inch in diameter) and were placed upon the face and neck until it became evident that the frog-skin would not retain its color.

The method used in dressing was as follows: The surface was first cleansed by irrigating with a warm solution of carbolic acid (one to forty), and after the detritus had been entirely cleared away the parts were washed with a stream of sterilized water. The latter step was to assure asepsis, grafts not thriving under conditions of antisepsis. Each graft was then firmly pressed into the granulating surface. Following this, a dressing of boric acid and vaseline (a drachm to the ounce) was spread upon strips of compress cloth, and applied so as to fit the parts snugly. Outside of this was placed sterilized gauze, and as a final step the roller bandage was used.

At first an attempt was made to hold the grafts in place by strips of gutta-percha; but it was soon found to be impracticable, as the surface was so extensive, and the child so nervous it was impossible to keep him still. The method employed although not so elegant proved effective, and few grafts were lost.

On October 5th, seven weeks after my first visit, the parts were all grafted in; nearly a thousand frog-grafts and about four hundred human-grafts having been planted. The skin, however, was soft and immature, and required constant care and dressing for three months thereafter.

The child attended school during the following spring, and at the time of the present writing (December 12th), has entirely regained his former robust health. He is able to throw his burned arm vertically over his head with no apparent effort. There is absolutely no contraction, the arm being full size where the burn encircled it.

I have recently seen frog-skin used in another case with very gratifying results, and I strongly recommend it as worthy of trial in cases where the destruction of skin is extensive, and it is deemed imprudent for the patient to furnish the epidermis required for the operation.

## AN ENDEMIC OF DIPHTHERIA APPARENTLY STOPPED BY THE USE OF ANTITOXIN.

BY F. GORDON MORRILL, M.D.,
*Visiting Physician to the Boston Children's Hospital.*

DURING 1894 there were three outbreaks of diphtheria at the Children's Hospital which rendered the institution worse than useless so far as the wards were concerned. Applications for admission had to be refused. Those who had the disease were transferred to the contagious wards, and all the other children were hurried away to the Convalescent House at Wellesley or to their own homes. The wards in which the cases had occurred, together with the furniture and bedding underwent the usual process of cleaning and disinfection, involving much trouble and expense, aside from the grave inconvenience of having the working of the hospital thrown out of gear for days at a time. The statistics of the disease were very unsatisfactory, as they have been everywhere previous to the use of antitoxin. It has also been very unsatisfactory, to say the least, to have a child enter the house for the purpose of having bow legs straightened or an eczema cured, and then die of a diphtheria contracted in the wards. It was thought at first that the disease was brought in by the parents and friends of the patients, and blouses and other precautionary measures were made obligatory to such visitors, in the hope of rendering them (externally) sterile. But in spite of these measures the thing recurred, and an active investigation (which is now in progress) will result, I think, in remedying certain faults in the ventilation, and thus reduce future danger to a minimum. The disease has apparently originated every time in one particular ward. But be this as it may, the result has always been the same; for all the children who were well enough to walk or even to be carried to the top of the building met in the playroom every day, and medical and surgical patients have suffered alike.

The cases were usually ill-defined at the start; a child suffering from what was apparently nothing more serious than a cold in the head or a mild tonsillitis would fatally infect others, or perhaps suddenly develop well-marked diphtheria in his or her own throat. In December there were two mild cases, both of which I injected with antitoxin, and would have then used the remedy throughout the wards as a prophylactic if it had been obtainable; but everybody at that time was hard pressed to obtain a sufficient quantity for a single case in private practice.

January 13th, eight days since, there were nine cases in the contagious wards, three of which were serious. During the preceding forty-eight hours there had been four or five cases sent over from the house, and the outlook was anything but cheerful. It was not my term of service; but as the staff very kindly gave me *carte blanche* in the emergency, I took charge so far as the diphtheria was concerned, and used antitoxin very freely and with particular reference to its immunizing properties. Every patient in the house was given an injection of five cubic centimetres of the serum prepared by the Pasteur Institute of New York, and admissions were continued with the proviso that each child should be given a like amount upon entrance. The patients in the contagious wards have been sent back to the house after being disinfected whenever they have shown two negative cultures three days apart. No fresh cases have occurred; and if we may judge by the history of previous outbreaks in the hospital, the present condition of affairs would appear to be the very satisfactory effect of a perfectly defined cause — it being the opinion of the staff that if protection had not been afforded the hospital would have been temporarily closed before now, and for the fourth time within twelve months. The patients who received the dose for immunity were suffering from various ailments, medical and surgical. No exception was made for any cause. In all 50 were injected, including those in the contagious wards. Three nurses and 39 children were injected for immunity. The ill effects were unimportant: well-marked urticaria on the fifth or sixth day in four; ephemeral diarrhea within twenty-four hours in seven; temporary increase of micturition in nine; anorexia and slight vomiting in four; well-marked tenderness over site of injection and extending up to axilla in two; erythema around the puncture in three. All these minor evils disappeared promptly. In some cases an increase of appetite and immediate improvement in general condition was noticed by Mr. Herbert J. Hall, the surgical interne, to whom I am indebted for good work in connection with the subject of these very hasty notes. These were mostly suppurative cases — spine and hip. Some very sick children were injected. In the surgical wards the serum was given in the evening (in many cases as late as 11 o'clock).

In no case to which I shall refer was the temperature normal when the injection was given. The surgical charts show an average temperature of 99.8° F. Four hours later it was 99.4°, the slight drop being accounted for by the hour (between 12 and 3 A. M.) at which it was taken, when the minimum would naturally be reached. Of those who showed a reaction (21 cases), the thermometer registered an average rise of .7° ten or twelve hours after the injections, and this in the morning when in children sick from other causes, the temperature would naturally be lower than in the evening. The greatest rise in any case was 1.8°. In one there was a drop of 2.8°; in one of 1.2°; in another of 4°. In a single instance there was no change whatever. These four were spine or hip patients. In 19 of the cases which reacted the evening temperature averaged 99.6° — a remission of about .5° at a time when, in a sick child, a rise would usually be expected.

The temperature of thirteen medical cases injected for immunity was 99.4°. These were all treated in the afternoon. Four hours later the average was 99.5°. Of the seven who reacted, the morning temperature (say sixteen hours after treatment) showed a rise of a small fraction less than a degree — this at a time when it would naturally be less than in the afternoon. Two cases registered a drop of .4°, one of 1.4°, and another of 1.2°. In one case no change was noted. A lobar pneumonia who had just dropped to normal showed the greatest reaction so far as temperature was concerned, a rise of 2.4°; but it dropped back to 99° in the evening, and there was absolutely no disturbance of its general condition. The average evening temperature of the cases which reacted was 99° in the evening. In short, the reactions were unmistakable, and agree with what has been hitherto observed.

Of those treated for diphtheria in the contagious wards, there is not much to be said. Two of the sickest children were sitting up in bed and enjoying themselves twenty-four hours after receiving a dose of

15 or 20 c. c. In both cases the temperature dropped twenty-four hours after treatment—one from 104° to 101.2°, and the other from 100.4° to 100°. Both were "nasty" cases. The worst case was sent over with a croupous pneumonia and the worst kind of diphtheria. In addition, there was almost a suppression of urine and edema of face and legs. In all, 45 c. c. was injected in this instance; but the child died sixty hours after the first dose, the temperature showing little or no change until a few hours before death, when it dropped from 102° to 101°. At the autopsy a broncho-pneumonia (from infection by the staphylococcus) in the lung opposite the original trouble (croupous pneumonia) was found. It was very extensive, and would have killed in any case. It is the only instance of an unmistakably double infection of the kind that I have ever seen or heard of. The mild cases have all done perfectly well, and three have been disinfected and returned to the general wards. There were no urticarias noted in the contagious wards.

## Medical Progress.

### RECENT PROGRESS IN DISEASES OF THE NERVOUS SYSTEM.

BY PHILIP COOMBS KNAPP, A.M., M.D.

#### DISTURBANCES OF SENSATION IN VISCERAL DISEASE.

HEAD[1] has concluded the very suggestive study analyzed in the last report,[2] with especial reference to the pain and tenderness in the head and neck produced by visceral disturbances. It is impossible in a brief analysis to do justice to these two papers, but they should be carefully studied in the original by all who desire to attain accuracy in the diagnosis of disease. In the first place by careful study of the distribution of pain and tenderness he differentiates seventeen areas in the head and neck, and he finds, as in his previous study, that the distribution of herpes zoster corresponds in the main to these areas, although on the face and head there is a much greater tendency for the eruption to appear over a group of several areas. The lower areas correspond to the sensory distribution of the third to the eighth cervical segments of the cord, and they overlap somewhat. Head next points out the areas rendered painful and tender by lesions of special organs of the head and neck. In affections of the eye, the headache produced by errors of refraction is associated with pain and tenderness in the mid-orbital region, it is definitely made worse by reading and sewing, it comes on in the morning as soon as the eyes are opened, it disappears under atropine when applied long enough completely to paralyze accommodation, and there is no pain or tenderness elsewhere. Disease situated deep in the cornea or anterior chamber causes referred pain in the fronto-nasal area; in the iris, in the temporal area; and farther back in the eye, in the temporal, fronto-temporal, and maxillary areas. The referred pain from diseased teeth varies according to the teeth affected, but in most cases Head has succeeded in establishing the area associated with each group of teeth. Disease of the external ear causes no referred pain; disease of the drum and middle ear causes referred pain and tenderness over the hyoid area; elevation of tension in the middle ear causes tenderness also over the vertical and parietal areas. Disease of the tongue causes tenderness in the mental, hyoid, and superior laryngeal areas. Furthermore, in disease of the various organs in the trunk there is apt to be referred pain and tenderness in the head areas as well as in the spinal areas, which the author in his previous article showed were associated with these organs. Thus in disease of the lungs there is apt to be referred pain in the fronto-nasal, mid-orbital, and fronto-temporal areas; in disease of the heart in the mid-orbital, fronto-temporal, and temporal areas; in disease of the stomach and small intestine in the temporal, vertical, and parietal areas; in disease of the liver in the vertical and occipital areas; in disease of the ovaries and testes in the occipital area; the uterus, the Fallopian tubes, and the bladder are not represented, and disease of these organs does not give rise to referred pain in the head. These areas do not correspond to the peripheral nerve-supply, which is found in the head to overlap tremendously. They probably represent some more central nervous arrangement than the posterior roots of the cervical plexus and main branches of the fifth nerve. All the thoracic and abdominal viscera which are referred into the dorsal areas of the scalp are supplied by the vago-glosso-pharyngeal nerve, which, as Gaskell has shown, represents the visceral branches of a set of nerves whose somatic sensory roots are to be found in the sensory portion of the fifth; so that it is not surprising that impulses passing up the vagus should be referred to the area of the fifth. The author's articles bear evidence of such careful and thorough work as to demand confidence, and the aid that a careful study of pain and tenderness in these different areas can give, seems to afford a new and valuable source of information in determining the diagnosis in cases of obscure disease.

#### NEURITIS.

*Beri-beri.*— Scheube,[3] whose earlier researches upon this disease are well known, has published an exhaustive study, which, in view of recent outbreaks of the disease in Dublin and occasionally on vessels, is of timely interest. He considers beri-beri a miasmatic infectious disease occurring chiefly in tropical countries. The special agent is still unknown, but it is to be sought in the soil; there are, however, certain individual and predisposing causes. Natives and colored persons are chiefly affected, men more than women; most cases occur between sixteen and thirty. One attack does not secure immunity. There are four forms of the disease: an imperfect, rudimentary form; the atrophic form; the dropsical form; and the acute, pernicious or cardiac form. The nervous system is chiefly affected, especially on the motor side; the legs and the peroneal muscles being chiefly affected. The cranial nerves are seldom involved, except the vagus, whose cardiac branches are especially apt to suffer. The paralysis is flaccid, and the muscles atrophy rapidly; symptoms of motor irritation also occur. There are various changes in the electrical excitability, sometimes amounting to complete reaction of degeneration. Sensibility in all its forms is diminished, and paresthesia is constant. The skin reflexes are normal; the knee-jerks are often absent. Cerebral symptoms are rare. Palpitation, cardiac distress and shortness of

[1] Brain, Part lxvii, 1894.
[2] See this Journal, Jan. 18, 1894.
[3] Die Beriberi-Krankheit, Jena, 1894.

breath are common; the pulse varies; functional heart murmurs are often heard. Anemia is frequent. There may be disturbances in the respiratory, digestive, urinary and genital apparatus, but these are less striking. There is very rarely fever. The patient usually recovers, the mortality not reaching five per cent. in his experience, but motor disturbances may persist. He gives the result of twenty autopsies. Dropsy is usually present, especially dropsy of the pericardium, and there are usually changes in the circulatory organs. The central nervous system is normal, but there is a degenerative inflammation of the peripheral nerves and of the muscles. The search for a specific bacterium has thus far proved unsuccessful. The disease is regarded as an endemic multiple neuritis. As prevention the author recommends good hygiene, a pure soil, good drinking water, and the erection of healthy dwellings. In the medicinal treatment of the disease digitalis has given the best results.

*Neuritis.*— An interesting discussion on peripheral neuritis was held last August at the Congress of Alienists and Neurologists of French-speaking countries.[4] Marie held to the opinion of Erb and others that the alterations in the peripheral nerves were dependent upon lesions provoked in the nervous centres by some morbid agent. If the peripheral origin of the alterations be assumed, how can we explain the symmetry of the motor and sensory troubles so often seen, or the incongruities in the localization of the trouble with regard to the nerve trunks — the segmental anesthesia, or the exemption of the supinator longus in lead paralysis? Furthermore, the atrophic paralysis of polyneuritis differs in no essential from the atrophic paralysis of anterior poliomyelitis. Anatomically, of course, the most profound changes are found in the nerves, but in polyneuritis the brain is often affected, and the latest and most exact researches are beginning to show lesions in the gray matter of the cord. The spinal ganglia have an important trophic influence upon the peripheral nerves, but very few observations have been made of them in polyneuritis. The lesions in the nerves themselves are often not in proportion to the symptoms; in many grave diseases, cachexiæ, and even in old age we may find changes in the nerves as great as in polyneuritis, without any marked motor or sensory troubles. The nerve roots may be apparently healthy, but this is not an argument against the central origin of the trouble, for the most peripheral parts of the nerve are the first to degenerate. Nevertheless the peripheral origin of some cases, notably leprous and vascular neuritis, cannot be wholly rejected, and an effort should be made to distinguish between the two forms.

Babinski distinguished two great classes of neuritis, those of external (usually traumatic) origin, and those due to internal causes, usually a toxic agent or a dyscrasic alteration in the blood. Only of leprous neuritis can we say that it is certainly due to peripheral causes. A very large number of cases, as Erb and Remak have shown in saturnine neuritis, are due to some slight alteration in the nervous centres. The axis-cylinder of the peripheral nerve is nothing but the prolongation of the nerve cell, and a disturbance of the central part of the cell, so slight as to be imperceptible, may in all probability manifest itself by changes in the parts of the cell farthest from the nucleus, that is, in the peripheral end of the axis-cylinder. Pathogenic agents may attack the whole cell, but only the most vulnerable part, the periphery, may show changes. Without one of these hypotheses it is difficult to understand certain forms of neuritis. We sometimes find lesions in the cord in cases presenting the symptoms of peripheral neuritis, especially in lead paralysis; but such changes may be seen also in cases of traumatic neuritis, clearly of peripheral origin, so that this argument is not decisive. The term peripheral neuritis should not imply that the lesions of the nerves are primary and the origin of all the trouble, and that the central nervous system presents no modification. It means only that the changes perceptible by present methods are located exclusively or chiefly in the peripheral nerves. Many of the pathogenic agents of neuritis cause disturbances both of the central and peripheral nervous system, and sometimes of other anatomical systems; the functional troubles due to them are caused not only by the perceptible changes in the nerves, but by dynamic changes elsewhere; the lesions of the nerves are only the most apparent alterations.

Renaut thought that the axis-cylinder, although a prolongation of the cell, must be considered as a highly differentiated member of it, rather than as a simple expansion. In the large amyelinic nerves of cyclostomes the axis-cylinder as it becomes a nerve quintuples in volume, and an abundant granular protoplasm takes its place between the fibrillæ; this is an active agent in nutrition. Perineuritis, Gombault's segmentary neuritis, parenchymatous and interstitial neuritis all point to a peripheral affection in many cases.

Pitres distinguished three classes of neuritis: local, due to cold, injury, or local infection (as in leprosy); general, toxic and infectious; and cases of central origin, as in poliomyelitis, tabes, hemiplegia, etc. The first two groups are due to alterations produced by the morbid agent on the peripheral parts; in the majority of cases they are primarily cases of peripheral neuritis.

Babinski called attention to the relations between tabes and peripheral neuritis, and held that the lesions in the posterior columns of the cord could not be proved to be secondary to lesions of the roots or spinal ganglia. Dynamic changes in the ganglion cells were merely hypothetical, yet we must assume them in tabes, optic atrophy, and other affections. Others hold that the affections of the nerves are primary, and that the cells may be affected later, by an ascending neuritis; but no case of neuritis of external origin has ever given rise to spinal lesions like those of tabes, and alcoholic, saturnine, or diphtheritic neuritis has never caused Duchenne's spinal atrophy.

*Psychoses of Neuritis.*—Colella[5] has made an elaborate study of the polyneuritic psychosis, based on a study of 35 cases, eight of which came under his own observation. In many cases of polyneuritis the psychical symptoms present a very definite clinical form. These symptoms are due to the same morbid conditions (toxic substances) which produce the neuritis. The psychosis, however, does not seem to have any definite relation to the severity of the neuritis. The psychical condition is represented by a particular mental state in which amnesia predominates. In one class of cases the disorder of memory may come on acutely, may be

[4] Congrès des médicins alienistes et neurologistes des pays de langue française. Archives de Neurologie, Sept., 1894.

[5] Annali di neurologia, xii, 1, 151, 1894.

more or less profound, may involve especially recent events, and may present itself almost as a state of isolation. In other cases, together with grave amnesia, disorders of consciousness, incoherence and restriction in the field of ideas predominate. In a third class phenomena of an exaggerated irritability in the psychical sphere predominate with the disturbances of memory. The psychosis may begin with a period of delirium and disorders of perception. After these have disappeared the disorders of memory may present the following characteristics: there is a profound, general, almost instantaneous amnesia of recent acts and impressions, contrasting with the detailed and precise account of more distant events; this amnesia may not only involve all memories subsequent to the onset of the disease, but also memories of the period immediately preceding; the absolute incapacity to recall present events is often in contrast with the precision of the patient's answers, the logic of his reasoning, and the justness of his conclusions; the amnesia is determined by the loss of the faculty of evoking memories, which conforms to the ordinary rule that the latest memories are the first to be lost, and that the affective faculties are lost more slowly than the intellectual. Recovery follows a similar process. Consciousness may be unaffected; but sometimes the patient has no consciousness of the place where he is, the people who are about him, or even of his disease. Ideation may be normal, but the range of ideas may be very limited. There may also be an exaggerated excitability and anxiety, sometimes approaching outbursts of mania. When the patient's general condition is good, and the cause of the disease can be removed, the psychosis usually terminates favorably, but when the evolution is very rapid and intense, and is due to a general and profound intoxication, and when it develops in debilitated subjects suffering from tuberculosis, cancer, etc., it is apt to result fatally.

Régis [6] in the discussion referred to above, does not admit that this psychosis is especially associated with polyneuritis, but thinks that they are both consequences of the same cause — intoxication or infection. He cites the case of a young man who, after diphtheria, had the characteristic mental state of the polyneuritic psychosis, but he had no neuritis until eight months later, when he had a mild attack brought on by cold. The infection may have left a protracted predisposition to the neuritis. The psychosis he believed to be simply an infectious psychosis, not necessarily connected with the neuritis, which is merely another effect of the same cause.

*(To be continued.)*

PRESSURE PALSY FROM WALKING UPON STILTS. — Bergonié and Bordier report a case of paralysis from pressure on the right anterior tibial nerve, just below the division of the external popliteal nerve into its anterior tibial and peroneal branches. The tibialis anticus and the extensors of the toes and the great toe were the muscles affected. The peronei had escaped. The patient lived in the marshy districts near Bordeaux, where the use of stilts is common, and walked several miles daily upon them. The stilt was buckled round the upper part of the leg by a stout strap, beneath which he wore a leather pad. It was this pad which had compressed the nerve. On the left side the pad fitted better, and the nerve had escaped injury.

[6] Archives de Neurologie, Sept., 1894.

# Reports of Societies.

## SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

C. L. SCUDDER, M.D., SECRETARY.

REGULAR Meeting, Wednesday, December 5, 1894, DR. F. B. HARRINGTON in the chair.

DR. F. S. WATSON read a paper describing

### A CASE OF FRACTURE OF THE BASE OF THE SKULL PROBABLY INVOLVING THE CAVERNOUS SINUS; OPERATION; RECOVERY.[1]

DR. BULLARD: I will just say one word on this case of Dr. Watson's. There are two points I wish to speak of. First, the size of the clot. The clot was very large. It extended as far back as could be determined and downwards towards the base of the skull. Between the orbital plate and the frontal lobe of the brain it was nearly an inch in thickness. In the second place, Dr. Watson compressed the middle meningeal artery near the pterion, and found that that did not stop the hemorrhage; consequently the hemorrhage was not due to the meningeal at or above this point.

Dr. Bullard also presented a paper on

### A CONSIDERATION OF SOME OF THE INDICATIONS FOR OPERATIONS IN HEAD INJURIES.[2]

DR. BRADFORD: The questions which Dr. Bullard has stated I think can be very briefly answered. In the first place, as to the size of the button. It seems to me that that depends somewhat upon the operation. If you are to remove a tumor of large size, you make the opening according to that tumor. If you are making an exploratory operation, it seems to me best to make an opening large enough for the rongeur forceps, in order that you may increase the size of the opening if necessary. As to opening the dura, I should agree with what Dr. Bullard says, that it should be treated as one would treat the peritoneum. One would rather not open the peritoneum when it is not necessary, but one would not hesitate to open it when it is. As to the length of time, it has seemed to me that speed is of importance, and it is for that reason that I feel inclined to use mechanical force in trephining, that is, surgical injuries. I have not formulated any opinion in regard to the length of time which packing should be kept in the skull. I know I myself have removed the packing too soon.

DR. ABNER POST: I can say very little except to agree in general with Dr. Bullard's propositions. In regard particularly to the size of the trephine, it seems to me that one should think rather of the instrument which will penetrate the skull the quickest than the exact size of the trephine. The larger the trephine the greater the mechanical force required to drive it, and a sharp instrument which is not exactly the size desired would be to my mind preferable to one of the exact size a man chose which was dull and would require a greater length of time, for time seems to me to be everything. There are very few skulls indeed in which the opening cannot be enlarged by the rongeur forceps after the trephine has once removed a single button. I do not think I ever met with but one skull where I was unable to enlarge my opening with ron-

[1] See page 78 of the Journal.
[2] See page 73 of the Journal.

geur forceps. My experience in regard to opening the dura would coincide exactly with Dr. Bullard's. I do not know as I have ever seen any trouble follow it, and I certainly have opened it a good many times. In regard to packing, I feel very sure that I have kept packing within the skull for a fortnight. In one case in which a longitudinal sinus was opened the packing required was pretty extensive to control the hemorrhage, and it was removed only gradually piece by piece. I am sure it was fully a fortnight before the last piece was taken out, and that patient recovered without any unpleasant symptoms. I should like to say one word a little outside of Dr. Bullard's line of argument, and that is in the use of the trephine in compound fractures. We speak invariably of trephining the skull in such cases, and I have noticed that a good many men who meet such compound fractures but seldom are a little surprised to notice that the trephine is not always necessary. A little judgment, little care, little use of the rongeur forceps in nipping off projecting points, or the elevator or forceps allows one to lift the depressed portion very rapidly without spending time with the trephine in a very large proportion of cases.

DR. RICHARDSON: I would like to congratulate Dr. Watson on his most brilliant case. I do not think I have anything to say with reference to the surgical questions Dr. Bullard has raised. I should agree with him in every particular, perhaps with the modification Dr. Bradford suggested of not opening the dura unless necessary. I think we should feel if anything does go wrong with a serous membrane, if any detail is neglected, — and we do once in a while even now see a drop of pus — I do — if we do get infection in a serous membrane like the peritoneum or brain, we have a deplorable result. As to the size of the trephine, I think one should be used which permits a rapid button formation, and yet not too large. I do not like the new trephines; they are built for the purpose of not slipping into the cranial cavity. I like the old cylindrical trephine. It cuts more rapidly, and one ought not to use a trephine if he cannot use it with sufficient skill not to suddenly slip into the brain. I usually use a trephine perhaps three-fourths of an inch in diameter. That is one I should select not only for the reason it acts more quickly, but with a very large trephine it is almost impossible to make a clean cut through the whole button; as there are very few parts of the bone where the thickness is the same.

I recall three cases in which opening the dura mater was followed by very extensive hernia cerebri, two were fatal at the end of some months; but it is only fair to say that there was a new growth in each pushing up the brain substance from behind. The third I reported a long time since; was septic; and I never understood why there was such extensive hernia. I should think one-half of the lateral lobe must have come out through the large opening, and the girl gradually became paralyzed and died. I do not recall the use of gauze to prevent hemorrhage in but one case. I never met that trouble from hemorrhage from flaps or other cause in cerebral operation except once, and in that instance it was controlled. The patient had a hemorrhage from the place Dr. Watson's came from. It was alarming. Dr. Brewster tells me he left the gauze in forty-eight hours. I think, as a rule, we are inclined to leave the gauze in too long, long enough to tear the newly-formed adhesions and to cause fresh hemorrhage.

DR. ELLIOT: I understand one of the points Dr. Bullard makes is that in these cases of patients unconscious after head injuries that opening the dura is a sufficient and very valuable procedure *per se*, even if neither blood or serum be found. This may be true, but his reasoning certainly fails to convince me. In the first place, if you take out a button where there is intracranial pressure, the dura itself gives somewhat and even bulges considerably where there is sub-dural blood; also in cases of brain tumor at the base, to relieve pressure we take out a button; we never open the dura in such cases; it relieves the pressure very much indeed without opening the dura. In these injury cases if you take out a button and open the dura, the brain itself does not bulge any more than the dura did; and so I see no advantage in opening the dura if there is no fluid under it. I often open the dura, yet I consider it a very important step in an operation. I think it is entirely different from opening the peritoneal cavity. In the peritoneal cavity things glue up rapidly and the peritoneal scar is not troublesome. After opening the dura, if you do a second operation, the brain is found glued to the dura and the dura glued to the skin, it makes a scar and a thickened mass which involves brain-tissue. Such a condition is objectionable, and should be avoided unless we are sure it is necessary. I know one case where a piece of the dura was cut out for epilepsy and there was relief for a year and then the convulsions returned; a secondary operation was done, and there was much more scar-tissue, much more of the condition which was originally found than at the first operation. The second operation brought only temporary relief, I suppose for the same reason. I often open the skull as an exploratory operation, and I feel I have not done any damage; but when I come to the dura I always consider carefully whether to go further. I think you can tell by feeling the dura whether there is any fluid under it. If there is fluid, you get the feeling of ballottement, the feeling of fluctuation. The dura does not necessarily bulge when there is blood under it. I have lately met a class of cases which is interesting to me. In these cases there is a compound depressed fracture, and the bone jammed into the brain, depression of half an inch or more. Take up the depression, and you feel the fluctuating dura, open the dura, and you find a condition of edema of the pia, perhaps a little bloody fluid, but not a great deal of blood. The pia seems to have been jammed and to have secreted a great deal of serous fluid. Of course, in such cases it is obvious that opening the dura is of value.

As to the time of the operation, I have usually felt there was no hurry, and I am governed entirely by the pulse and condition of the patient. I am surprised also in the indications for operation that Dr. Bullard has not laid more stress on the pulse. To me it is one of the most important things.

I think that packing in the skull cavity and especially in these large bleeding cavities ought to be managed with great care and great consideration. I do not think you can say it ought to be left in ten days by any means. I think in a general way packing ought to be left in if there is bleeding as long as it does not do any harm. It may cause pressure symptoms or even convulsions. It is extraordinary how gauze or a little pus in the wound or a little edema in

the flap outside the trephine hole affects the brain. I have seen such things cause convulsions so that it seemed as if the operation was wholly unsuccessful. When, however, the wound complication disappeared the case turned out all right again. So I think that although some cases do much better to leave the gauze in, it is not a general rule that should be followed.

Dr. Watson: I should like to speak for a moment in reference to the point Dr. Elliot has raised. It is the point Dr. Bullard brought out particularly and which I think he has focussed more clearly than Dr. Elliot. I am inclined to believe that some of Dr. Elliot's cases of pia edema are of that class of cases which Dr. Bullard described. This is outside the immediate line of discussion, but this question of acute edema following injury is very interesting I think. I had not heard it carefully described, or much importance given to it until Dr. Bullard called my attention to it last year. I had then two such cases, there was no intracranial hemorrhage whatever, but the patients showed symptoms such as arise from hemorrhage. On trephining and opening the dura, a considerable quantity of clear fluid poured out through the incision. The relief afforded by the evacuation of the serous fluid from the brain was very striking, and such as Dr. Bullard describes, and I cannot but think that in some of these cases, this acute edema is, as Dr. Bullard says, the important factor in the case; I do not know any neurologist who goes as Dr. Bullard has gone for years with the surgeons to all surgical cases of head and spinal injury occurring at the hospital, and I think great weight should be placed upon what he says as to this special class of cases after so large an experience.

Dr. Walton: I think Dr. Bullard is to be congratulated on his résumé of the subject and on the clearness with which he has brought his individual views before us. I am rather inclined, however, to agree with Dr. Elliot that we should not minimize the dangers of going through the dura mater simply because in a great many cases we fail to find unfavorable result therefrom. I have always regarded the dura mater as a danger point in the operation, not only on account of the greater danger of immediate injury, but on account of the other point alluded to by Dr. Elliot, that is, that after the operation is over the inflammatory products and the adhesions inside the dura pressing on the brain itself may become a source of irritation and set up convulsions in future time, dangers we do not incur when we leave the dura alone; and yet, though I regard it as a danger point, I should advise going through where there is any doubt. In advising this step I should not be guided simply by the question of pressure, a lesson impressed upon me by a recent case of Dr. Porter's in which there were undoubted signs of hemorrhage under the dura, convulsions on one side and deep coma coming on six days after the accident. In that case after going through the skull the dura was really depressed; it was far from bulging and it apparently pulsated, and there was considerable hesitation about recommending going through the dura. I was, myself, rather inclined not to advise it because there was no bulging and because there was apparent pulsation, and yet there was a slight lividity of the dura which influenced Dr. Porter to incise this membrane and disclose an extensive clot, which was removed, leaving the brain permanently depressed. That brings me to the point Dr. Elliot brought up regarding the cause of lack of bulging in some of these cases. In that case it looked as if the brain was really atrophied, partly perhaps from the loss of blood and perhaps partly from general circulatory defect. This is the first case of the sort I have seen, for in all previous cases of hemorrhage I recall the dura was bulging. About the size of the opening, I should not quite want to make a cut-and-dried rule that every opening should be at least two by one inches for example, or of any definite size. I think the trephine opening above will sometimes suffice for exploration, or tapping a cyst, perhaps; and I should be guided by the necessity of the case. If there is necessity for opening it, that is, if there is marked bulging, for example, of the dura mater, I would advise enlarging the opening extensively before going through the dura mater. I saw one case with Dr. Richardson in which there was a large glioma, in which the opening was made as we thought at first sufficiently large; but on opening the dura the brain poured out in every direction over the trephine opening so as to materially interfere with further enlargement. With regard to the question of time, I consider this factor often important, so important that I have favored in one or two instances the plan of Horsley, followed several times at the Massachusetts General Hospital, of first removing the bone, then allowing the wound to heal by first intention and several days later tearing it open and continuing the operation. This plan has worked very nicely in the cases I have seen.

Dr. Prince: I doubt if I can add anything of value to what Dr. Bullard has already said in his exceedingly interesting paper. I think his studies, if future observations shall confirm them, as I have no doubt they will, will prove to be quite an advance in our knowledge of the symptomatology of these cases, and will be a great help in the diagnosis and gives us valuable guides to operation. There is only one point on which I should like to speak, and that is on the usual surgical guides which are made use of by surgeons. There always will be, it seems to me, doubtful cases. You may lay down all the rules for guidance that you please, and there always will be cases in which you will be in doubt as to whether the hemorrhage is upon the surface or in the interior of the brain; as to whether there is hemorrhage at all, or whether it is a serous effusion; whether the symptoms are due to laceration or what not. Now, we may lay down all the rules we like, but in a practical consideration of these cases at the bedside I cannot help feeling that we must be in doubt at times, as I know I have been when called upon for an opinion in the past. The point I wish to make is this: it seems to me that surgeons have always been a little too prone to consider whether or not they should operate, to consider what the prognosis is regarding the life of the patient and to consider that alone. I think all neurologists here will agree that many of these cases afterwards turn up in the neurological departments of the hospitals and there come into the hands of the neurologist and their after-condition in many cases is pitiable. In such cases it seems to me we should also consider what the after-condition of that patient is likely to be. For example, we have a doubtful case, not quite certain as to the location of the hemorrhage if there is one. It seems to me that in such cases, even if we are not certain as to the advisability so far as life is concerned, that we ought to give the benefit of the chance to the patient

and operate if we feel certain we shall not do any harm, even although we feel certain he will get well. I have seen so many cases where the patient has been a wreck afterwards in life that I think that should be taken into consideration as well as the mere question whether or not the patient is going to get well. Only the other day, for example, I was called upon to give an opinion, and I advised operation. The surgeon was opposed to it, I think largely on the ground that the patient would get well. The patient did get well; but I am still of the opinion from the after-condition that the operation should have been performed, and I am not certain that he don't come to operation yet.

Regarding this matter of opening the dura, perhaps I should not hold an opinion, but I do think this, that it is a little mite risky laying down positive rules that it is perfectly safe to open the dura, because I think we can only say it is theoretically safe on the supposition that absolute antisepsis is obtained. I think we must take into consideration the results of other people's operations as well as those with whom we are conversant; and I think perusal of the literature will show that it is not very infrequent to have sepsis after the dura is opened, and even, as Dr. Richardson has said, he himself has had a case where sepsis occurred, and yet one cannot doubt that every precaution was taken. Therefore, while Dr. Bullard might lay down that rule theoretically provided absolute asepsis can be secured, it seems to me a dangerous rule to give the surgeon at large, and to say that anybody, no matter whether he is careful or not, his methods good or bad, can open the dura with impunity. It seems to me a little bit dangerous rule to lay down in that way.

DR. FOLSOM: I am very strongly of Dr. Prince's opinion that there is a very considerable number of cases where it is absolutely impossible to say precisely what is the source of the paralysis or of the pressure. I think in those cases it is justifiable and good practice to trephine, and if necessary to take out two or three buttons of bone, to make quite a large opening simply for the sake of making a diagnosis. That has been done in three cases in my practice in the last five years. In neither case did there seem to be any sufficient reason for going through the dura. Neither the family nor I should have been satisfied, considering the gravity of the situation, if in each case that much had not been done. If the dura is not opened, it is a simple operation and justifiable for assistance in making an accurate diagnosis.

DR. KNAPP: I feel very grateful to Dr. Bullard for his valuable and clear paper. I think he has put the rules for operation in these head injuries more concisely and more simply than has been previously done. As regards the indications for operating, I agree with him distinctly that we should be guided very largely by the indication of increased intracranial pressure; but I would also agree with Dr. Prince that there are a good many cases where it is better to operate even if it is not on account of the simple question of life or death. It seems to me that in every case where the symptoms are at all grave we should operate. I believe that it makes the prognosis only a little worse in such a case, that the risks of the ordinary trephining are very slight; and in those cases, as Dr. Prince has suggested, where there is possibility of local injury to the brain I believe that we should remove as far as possible early in the development of the case the source of the irritation.

I am glad to hear most of the surgeons agree in the question as to opening the dura, an opinion which I have held almost from my earliest experience in brain surgery. I have never yet been able, in what I have read or observed in the cases of trephining, to discover that opening the dura added materially to the risk. I think the case Dr. Walton has cited is just such a case. We might have had the record of the first operation for brain tumor in the world if the surgeon had been willing to take the risk of opening the dura. The last stroke of the operation was not done, and the tumor lay just beneath the dura. Certain risks in opening the dura must, however, be admitted. It adds somewhat to the risk of sepsis. There is also some risk, as Dr. Elliot has suggested, of setting up adhesions and possibly causing epilepsy. The chief immediate risk, as far as life goes, is the risk of brain hernia. That develops, I believe, under only two conditions: the first place, under septic conditions where for some reason, I know not why, there is the possibility of very tremendous hernia; and, secondly, in the cases of tumor, where the tumor cannot be removed. My own experience with trephining for the relief of pressure in brain tumors is that I have not got much relief to the pressure, until the ventricle was tapped; but I think that in every case of trephining for the relief of pressure of the brain tumor, you will be pretty certain to get brain hernia and death in the course of two or three months; I doubt if you get very marked relief for any length of time in those cases from opening the skull without opening the dura. The dura is usually so tense and so firm that it gives very little relief. The suggestion with regard to edema of the brain which Dr. Bullard has made, is of distinct interest. In cases of that sort it seems to me it is necessary to open the dura in order to get drainage. You get a little enlargement from the bulging of the dura; but the relief that is to be obtained is the relief by means of drainage — the drainage of the cerebro-spinal fluid or the edematous fluid which is causing the increased intracranial pressure. If you do not let that out, you do no good.

DR. LOTHROP: I would like to say just a word in regard to opening the skull. The ordinary method here is with the trephine, and then enlarging with the ronguer. Recently I have seen a good many cases where the skull was opened with the chisel and hammer, and in these cases you can make use of the line of fracture. First make an oval incision going through to the skull, not stripping off the periosteum, then chisel round on the bevel and turn down more or less of this bone-flap according to the size of the opening desired. You have at once a large field for operation, and it makes no difference whether the skull chips or cracks; simply remove all the spiculæ, and turn the flap back, and it has the advantage of being able to close the opening in the skull, whereas with the trephine and ronguer you have lost all the bone tissue. I think that this method has some advantages.

DR. ELLIOT: I should like to mention one case that bears on the point of opening the dura. I had a child two years ago; the top of the head was broken in by a severe injury, and the whole top of the skull taken out, and the dura was lacerated and brain lacerated in several different directions, so that the brain substance with blood was running out. In that case it seemed to me that the brain was fast oozing away, and I sewed up the dura tight with two lines of catgut suture with all the blood and degenerated brain

in there, and he recovered promptly, but had certain paralyses. In this case a very severe brain injury did well with the dura closed.

DR. RICHARDSON: In the case Dr. Prince referred to of hernia, the dura was opened for abscess. It was a case of sepsis previous to the operation. Moreover, the operation was performed in the antiseptic days in the time when the mortality from sepsis was great. I trephined last summer twice for brain tumor. In one instance it was for a glioma. In another instance I trephined over both lobes of the cerebellum in a child, and was able to see through the transparent dura the outlines perfectly of the convolutions of the cerebellum, and it was evident that there was no tumor there. The relief from pressure was so great that the child, from groaning and pain, became perfectly quiet, and was singing all the rest of the time in the hospital. I have been sorry I did not open the dura in that case, and explore with the finger all the lobes of the cerebellum; but not being able to feel or see anything, it seemed at the time that we had done enough.

DR. HARRINGTON: In connection with what Dr. Prince has said about the difficulty of deciding what to do and the importance of operating in certain cases where life is not threatened, but where the after-effects may be bad, I should like to mention a case which came to the hospital last summer. An infant of a few months was placed by its mother on the tail-board of a wagon. The horse being tied and being suddenly startled brought his chin down on the child's head. The result was a marked depression in the middle of the parietal bone as large as a silver half-dollar which might have held half a drachm of liquid. The child cried and suffered considerable pain at the time of the accident. There were no symptoms of pressure. I watched the case a week. The child seemed perfectly well. There seemed to be no change in the depression. It was a case in which one would have had very little difficulty I think in elevating the depressed skull, but it seemed to me that the condition was more like a green-stick fracture and that in time the development of the parts would correct the depression or that the pressure being regular and free from spiculæ, no trouble would ensue. Yet this was not the unanimous feeling of surgeons who saw the case. I have not since heard from the child and for this reason I judge that there have been as yet no unfavorable symptoms.

DR. G. H. MONKS showed a pair of Keen's rongeur forceps, which he had used successfully in one case, where it was necessary to make a very large opening in a child's skull.

DR. BULLARD: In regard to intracranial pressure, I consider that the most important symptom in determining in many cases the question of operation. In these cases we often trephine and find the dura bulging and tense and there is no pulsation. It is in those cases that I advise that the dura be incised. Of course there are certain cases in which the dura is not tense. They are not very uncommon. We may have tenseness of the dura and non-pulsation from hemorrhage beneath the dura or the pia; but as a rule the bulging in these cases is not due to hemorrhage apparently, but to simple swelling of the brain, because the moment the dura is cut the pulsation of the brain returns without fluid escaping with great rapidity from anywhere. But it is impossible to say absolutely what the cause of this condition is. All I know is that there is increased intradural pressure which does not appear to be due to hemorrhage. After the dura has been cut the advantage to the patient is very evident in many cases; of this there is no doubt. Patients are brought to the operating table comatose, with stertorous respiration and apparently in almost hopeless condition. I have seen such patients recover consciousness immediately after getting over the effects of the ether and retain that consciousness and go on to recovery.

With regard to the question of packing, Dr. Richardson, I think, said he had taken packing out in two days without any untoward effects. I have seen packing stay in eleven days and then removed without untoward symptoms. The packing may stay in sometimes for some time without producing untoward symptoms although the difficulty of removal is said to be greater when it stays in longer. On the other hand, I have seen packing put in and hemiplegia, partial paresis of the extremities, produced by that packing. Yet although the packing was allowed to stay in nine or ten days, the paresis passed off with the removal of the packing. In other words, the mere fact that paresis is produced by pressure of packing, does not in itself contra-indicate the leaving in of the packing for several days.

DR. BURT showed a specimen well preserved in a solution of formalin (1 to 40).

## MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

TWENTIETH ANNUAL MEETING, AT HOT SPRINGS, ARK., NOVEMBER 20-23, 1894.

### FIRST DAY. — MORNING SESSION.

THE Association was called to order by the Chairman of the Committee of Arrangements, DR. THOMAS E. HOLLAND, of Hot Springs.

An Address of Welcome on behalf of the State was delivered by GOVERNOR GEO. W. FISHBACK.

HON. W. H. MARTIN, of Hot Springs, followed with an Address of Welcome on behalf of the citizens of Hot Springs.

### PRESIDENT'S ADDRESS.

After the reading of the reports of the Secretary and Treasurer, the President, DR. X. C. SCOTT, of Cleveland, Ohio, delivered his address.

At the conclusion of the President's address, a committee of five was appointed to consider the suggestions contained therein and to report at a subsequent session.

### FIRST DAY. — AFTERNOON SESSION.

DR. EMORY LANPHEAR, of St. Louis, followed with a paper entitled

### BONE AND JOINT TUBERCULOSIS THE FUTURE FIELD OF LITIGATION AGAINST RAILWAYS.

He submitted the following conclusions:

(1) Pott's disease, hip-joint disease, white swelling, and most chronic joint affections are tuberculous, and "scrofula" has no existence, being but an attenuated tuberculosis.

(2) The family history is unimportant, as tuberculosis is always acquired — never inherited. The

presence of tuberculosis in the family simply gives a better opportunity for infection.

(3) Infection may occur in very early life. The germs lie dormant for many years in the lymph glands, and local tuberculosis only develops after an accident.

(4) An injury to a bone or joint must be slight in order to cause tuberculosis. If severe, the resultant inflammation or hypernutrition is not favorable to the proliferation of the bacilli.

(5) An injury *alone* can never produce tuberculosis. The bacillus must always be present in the system, or introduced into a wound at the site of injury.

(6) *Per contra*, bone or joint tuberculosis would never develop without a slight local injury.

(7) If after a railroad accident, falls, wrenches, or other accidents may possibly have occurred, the local trouble may be due to them as well as the railway injury. There must be a direct sequence to attribute the disease to the local injury.

DR. ROBERT H. BABCOCK, of Chicago, made some remarks on

ENLARGEMENT OF THE HEART WITHOUT VALVULAR DISEASE, WITH SPECIAL REFERENCE TO TREATMENT.

The reader said that idiopathic enlargement of the heart, as Fraentzel designates it, affecting primarily the left ventricle, is due primarily to prolonged, high arterial tension; and this increase of arterial tension may be secondary only to (1) a cirrhosis of the kidneys, (2) chronic arterio-sclerosis, (3) congenital narrowing of the arterial system, and (4) some obscure condition probably dependent upon defective assimilation and elimination, which is not fully understood, connected probably with the circulation in the blood of toxines. He wished to be understood as speaking of idiopathic enlargement of the heart without valvular lesions. Prolonged, high arterial tension he considered the chief factor concerned in the production of this form of enlargement of the heart. The enlargement may involve either the right side or the left side of the heart, or both. A case was reported in which the enlargement was primarily of the left ventricle; and the enlargement which existed on the right side of the heart was probably secondary to the dilatation which had taken place of the left ventricle. Prolonged, high arterial tension, when independent of organic disease of the kidneys or blood-vessels, seems to be due to what the Germans call "luxus consumption." It is observed in individuals who belong to the better class, who are more or less sedentary in occupation, who are hearty feeders, and oftentimes great diners out.

The treatment was divided into, first, the treatment of the stage of loss of compensation in which the heart is at first broken down in its resistance. Rest is the important factor, along with cardiac stimulants and the administration of remedies calculated to decrease the high arterial tension. The patients usually present themselves with dyspnea, cough, and frothy expectoration, and an extremely rapid and feeble pulse, with all the evidences of cardiac dilatation. Our first indication, therefore, is to relieve the over-distended left ventricle and to whip the heart on to increased vigor or contraction. Hydragogue cathartics are therefore indicated from the first, since their action is to lessen arterial tension; and by preference the author uses one of the mercurials, since the effect of calomel or blue mass is to lessen arterial tension even before its effects are manifested on the intestines, and this is followed by a saline.

Digitalis, strophanthus, and their congeners are not suitable to the cases in the stage of loss of compensation; since the effect of digitalis, and to a less degree strophanthus, is to increase the resistance within the arterial system, and thereby increase the strain, already too much for the impaired right ventricle. It is preferable to administer an arterial stimulant rather than one of the so-called cardiac tonics. Under the effect of rest and cardiac stimulants improvement in the condition is generally manifested speedily.

The author then referred to the Schott method of treating these cases, which consists of baths and gymnastic exercises. He stated that the treatment had been used in Germany for more than ten years. A combined course of baths and gymnastics is given for an interval of from perhaps seven or eight weeks. He considers this method of treatment suitable to all forms of chronic cardiac disease, excepting those in which heightened arterial tension would be disastrous, as in widespread and extreme chronic arterio-sclerosis, aneurism of the aorta or other large vessels, or cardiac aneurism.

DR. W. T. BAIRD, of Dallas, Tex., read a paper on

OXYGEN AS A HEART TONIC, AND SOME OF THE BENEFITS WHICH MAY BE DERIVED FROM ITS USE AS SUCH.

DR. W. H. DALY, of Pittsburgh, Pa., followed with a paper entitled

MALARIA A WATER-BORNE DISEASE.

The reader said, in summing up the evidence in a given case of so-called malaria, that it was important to remember that the water vehicles of malaria may include contaminated land-water, taken into the stomach on the stalks of celery or on the leaves of lettuce, or it may find its vehicle in the rinsing of milk-cans with malaria water or in the adulteration of milk with contaminated water containing the Laveran germ. The cistern-water stored under the earth may be easily contaminated by the earth-water containing the germ, if the cistern itself is cracked or otherwise inefficient. The fact that the patient has drank at all of suspected water, even but once, ought to be taken into consideration, as a single draught of contaminated water may have contained all the necessary germs for the infection of the blood and the production of the fever.

The author defined his position on this question by quoting from an article, published in the *Medical Record* of September 15, 1894, wherein he says: "Twenty years observations and studies on this subject, and investigations made in various districts from Manitoba to Louisiana, and all along the southern coast of the Atlantic Ocean, and of Cuba, Yucatan, and other districts in Mexico, lead the writer to the conclusion, that so-called malarial disease is not easily, if at all, contracted by inhaling so-called malaria or bad air, of the low, swampy or new lands, but it is distinctively, if not almost exclusively due to drinking the water that has come in contact with or become infected by the malarial germs or infusoria that exist in the earth and waters of the swamps and low lands. This germ does not ordinarily, if at all, float in the air during the day nor does it find easily a vehicle in the fog or vapors of the night."

SECOND DAY. — MORNING SESSION.

DR. A. P. BUCHMAN, of Fort Wayne, Ind., read a paper on

INTESTINAL INDIGESTION.

In conclusion the author said that any form of treatment instituted for the relief and cure of intestinal indigestion must necessarily include a careful consideration of the stomach and colon; that very little, if any, amelioration of symptoms will result unless they are both rationally included. Inasmuch as the colon is within easy reach *via* the rectum, it is the author's experience that colonic baths properly medicated are immensely useful in the general treatment and care of patients suffering with intestinal indigestion.

DR. J. E. WOODBRIDGE, of Youngstown, O., read a paper entitled

TYPHOID FEVER CAN BE ABORTED; ANOTHER YEAR'S WORK WITH NO DEATH AND NO FAILURE IN EVIDENCE.

This paper was in the nature of a supplement to the author's previous contributions on this subject.

DR. HENRY SUMMA, of St. Louis, read a paper on

OX-GALL IN THE TREATMENT OF TYPHOID FEVER.

The author highly recommended its use in this disease, and had obtained excellent results with it.

DR. A. B. WALKER, of Canton, O., discussed

THE IMPORTANCE OF URINALYSIS IN DIAGNOSIS.

If physicians and surgeons could avail themselves of this important aid to diagnosis, much more good could be accomplished to their patients, many a life spared, and thousands of dollars saved life-insurance companies. As urinalysis requires but a few moments of time, and the results from it are so positive and true, the writer felt that no opinion of a case of any importance should be given without there having been made a careful examination of the urine.

DR. A. M. OWEN, of Evansville, Ind., read a paper entitled

MY EXPERIENCE WITH GOLD AS A THERAPEUTIC AGENT.

DRS. FRANK R. FRY and M. A. BLISS, of St. Louis, presented a paper on

QUININE IN THE TREATMENT OF CHOREA.

The writers briefly reviewed Prof. H. C. Wood's theory of the causation of chorea as set forth in a paper on "The Choreic Movement," published in the *Journal of Nervous and Mental Disease*, April, 1893. They then reported a number of their own cases from clinic and private practice, in the treatment of which they have been using quinine. Their results confirm those of Dr. Wood and others. They called attention to the fact that they had not used as large doses as others, yet had had very satisfactory results. They raised the question whether the effect of quinine in this disease is due to the *modus operandi* suggested by Dr. Wood, namely, its stimulating effect on the spinal inhibitory apparatus, and not to some other effect. They suggest that this drug has a decided value in the treatment of certain infectious diseases, in which class, according to the opinion of some authorities, chorea belongs. While they have witnessed, decided, and, as a rule, only beneficial effects from the drug, in chorea they concluded that more data must be collected before its final status may be determined upon.

DR. EDWIN WALKER, of Evansville, Ind., read a paper on

REFLEX IRRITATION AS A CAUSE OF DISEASE.

The writer thought that no error in modern times has held such tenacious hold on the professional mind as that of reflex irritation as a cause of nervous disease. In fact, to most of us the explanation of the occurrence of any nervous phenomenon or lesion is satisfactorily accounted for if some peripheral irritation is found. A long prepuce, some slight version, flexion or laceration of the uterus or other deviation from the picture in our charts, is sufficient to account for hysteria, epilepsy, or other nervous disease. The reflex theory dates back many years. Early in this century it was offered as an explanation for certain neurotic phenomena; but its prominence in the medical mind of to-day is due to the lectures of Brown-Séquard on the "Physiology and Pathology of the Nervous Centers," delivered in London in 1858.

The essayist then alluded to the contributions of several other prominent writers in regard to reflex irritation as a cause of disease, and said that for nearly twenty years he had thought much of this question, his attention being first called to the articles of Sayre. He followed his advice and did many circumcisions, and later, mainly through the teachings of Emmet, did operations on the cervix and vagina, and has observed many cases of neuroses in women presenting various lesions of the genital tract; and states that he has never seen a case of epilepsy, insanity, catalepsy, hysteria, or grave neurasthenia, nor any organic disease of the nervous system cured or even permanently benefited by any operation on the genital tract, either done by himself or any one else. He has also noticed that a large proportion of patients who consult us for diseases of the genital tract do not suffer from definite nervous disease; and, on the other hand, that of patients who do consult us for nervous diseases, many and perhaps most of them are free from genital disease. In a given case in which we find genital irritation and nervous disease, a careful inquiry into the case will develop other more potent causes. The writer does not deny that lesions of the genital tract may not in some way derange the nervous system, but insists that it does not do so by reflex action. For example, a woman has a bad laceration of the perineum that interferes with her locomotion; it is difficult or painful for her to go about; her life becomes sedentary; she suffers with constipation, and later with dyspepsia, from her inactivity; then her general system suffers from deficient nutrition as well as the want of healthful exercise. The nerves are not nourished, and disease is engendered. Or a patient has some disease of the abdominal viscera; perhaps he has intestinal indigestion and nervous symptoms — a very common thing. Are we now to say that his nervous disease is reflected from his bowels? Certainly not. The lack of proper digestion and assimilation of food starves the system or by auto-infection poisons it.

*(To be continued.)*

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LADY PAGET, the wife of Sir James Paget, died in London, January 7th, aged eighty years. She was married to Sir James Paget in 1844; their golden wedding was celebrated last year.

THE BOSTON

# Medical and Surgical Journal.

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## GONORRHEAL INFECTION OF THE NERVOUS SYSTEM.

VARIOUS observations which have been recently published indicate that gonorrhea, like other infectious diseases, may give rise to secondary affections of the nervous system. Engel-Reimers [1] has collected four cases of multiple neuritis, two of which came under his own observation, which show that the toxines produced by the gonococcus may act deleteriously like alcohol or lead. A healthy man had gonorrhea, followed four weeks later by vesical symptoms. With these he had a gradual loss of power in the legs, and muscular tenderness. Ten days later the legs were wholly, and the arms were almost wholly paralyzed; the knee-jerks were lost; the electrical reactions were diminished; the sensibility was unimpaired; and the nerves and muscles were extremely tender. Later the face and larynx were involved. Convalescence was established in nine weeks.

A healthy girl was impregnated and infected one month before. The gonorrhea was followed by gradual paralysis, first of the arms and then of the legs, with pain, tenderness, and reaction of degeneration. She improved in five months, and was delivered of a healthy child at term. Engel-Reimers also thinks that there may be an isolated neuritis of gonorrheal origin, especially of the sciatic nerve, analogous to the multiple swellings of the joints, inflammation of the sheaths of the tendons, iritis, etc., due to gonorrhea; such a neuritis may vary in its severity with the gonorrhea. He also reports a case of acute spinal meningitis, and quotes two other cases. Gonorrhea alone seems inadequate to produce this condition, and some exciting cause, especially cold, seems also necessary. His own case was that of a young coachman, who had gonorrhea three weeks before, and who sat on his box in a severe north wind for several hours. He had a severe chill, sudden headache and backache, vomiting, fever, stiffness of the neck, herpes and erythema. The spleen was not enlarged and the sensorium was free. The spine was rigid. The headache and stiffness of the neck disappeared in forty-eight hours. The knee-jerks were exaggerated and there was much pain and tenderness over the vertebræ. Eleven days later the temperature fell, and in four weeks he recovered.

Tambourer [2] reports the case of a man who had chronic gonorrhea of three years' standing, associated with stricture, arthritis in the larger joints, and phlebitis in both legs. The phlebitis disappeared and the arthritis improved, but he had a sudden attack of cerebral embolism with right hemiplegia, and died in three days. The phlebitis and embolism were considered due to gonorrhea, Leyden having demonstrated gonococci in the vegetations on the valves in a case of acute gonorrheal endocarditis. Muscular atrophy and exaggerated reflexes were present, and were ascribed to the arthritis.

Pitres [3] supplements this by the report of two cases. A man with acute gonorrhea and arthritis had a sudden attack of apoplexy, with right hemiplegia and aphasia. Eight weeks later he had attacks of Jacksonian epilepsy and died. There was a large area of softening in the left hemisphere, and abscess of the kidney. The heart and vessels were healthy. Another young man with gonorrhea was attacked with left hemiplegia, from which he made a partial recovery. The heart and vessels were healthy. Pitres commits himself to no explanation of these cases, but states that he was simply struck by the coincidence of the two affections, especially so in the last case, in a man who had none of the ordinary causes of hemiplegia. He adds that if the observations multiply we may find that gonorrhea may produce softening of the brain, as it seems to produce myelitis.

Cullerre [4] reports the case of a woman with stupidity and hallucinatory confusion, symptoms of meningoencephalitis, and ideas of satisfaction and riches, which he thinks indicated an infectious psychosis. The only infection was by the gonococcus, but moral causes and possibly alcohol entered into the etiology, and provoked the explosion of nervous accidents prepared by infection. The second case had a bad nervous heredity; a young woman after gonorrhea, developed hallucinations, stupor, and outbursts of mania and melancholia.

Venturi [5] in twenty-two cases of hebephrenia found gonorrhea in twelve. It usually preceded the mental trouble, and none of the cases recovered until the gonorrhea was cured, the cure of the mental trouble usually coming two or three months later. Venturi thinks that there is a specific morbid process, a serous sub-arachnoid effusion provoked by the gonococcus.

[1] Jahrbücher der Hamburger Staatskranken-Anstalten, II. Jahrgang, 1890.

[2] Société de neurologie et de psychiatrie de Moscow, January, 1894, Revue neurologique, June 30, 1894.

[3] Revue neurologique, August 15, 1894.

[4] Vendée médicale, May 1, 1894.

[5] Riforma medica, Nos. 20, 21, 1894.

These latter cases do not seem very conclusive. Proof that the embolism is really due to any action of the gonococci is lacking, and, as Pitres says, the embolism may be merely a coincidence. In the reported cases of psychoses, gonorrhea seems to have been merely one factor in the etiology, and it is not unreasonable that the idea of having gonorrhea may have had a greater effect upon the brain than the gonococcus itself.

## REPORT ON NEW YORK TENEMENT-HOUSES.

THE New York Tenement-House Commission, of which Mr. Richard Watson Gilder is chairman, presented its report to the Legislature on January 17th, and it contains a large mass of information and numerous recommendations. The statements, we take it, are probably accurate. How far all the recommendations are possible and can be practically applied, time will show. The present situation unquestionably admits of great amelioration. The Commission found that New York, below the Harlem, had a greater density of population than any other city in the world, so far as known, namely, 143.2 per acre. In one down-town east-side district of 32 acres, there were found no less than 476.6 persons to each acre. After enumerating some of the evils of over-crowding, the report states that the "double-decker" tenement is the one hopeless form of tenement-house construction. It cannot be well lighted, it cannot be well ventilated, and even the High Street houses in Edinburgh, constructed centuries ago, are not so bad. Under the head of danger from fires the report says:

"In the year ending June 30, 1894, there were 2,415 tenement house fires, involving a loss of $608,784, and in that time fifteen occupants were killed outright and seventy-two injured. It is a startling fact that while less than one-third of the buildings in New York are tenement-houses, among them occur annually more than one-half of the fires."

Density of population, it was found, does not necessarily affect the death-rate, for the Tenth Ward, with its population of 621.66 to the acre, has a death-rate of only 17.14, next to the lowest in the city. The facts showed that soil and natural drainage have much to do with the death-rate, and the age and condition of buildings used as tenements affect it more than almost anything else. "It is a well-known fact," the report says, "that human dwellings, by prolonged occupation, become so saturated with the bodily emanations of those who have lived in them, sick and well, as to be less healthy than newer houses. This result of prolonged human occupancy is made worse in this city by the rapidity with which the character of the population in the lower parts of the city has changed, and the fact that houses built as private dwellings are not fitted to serve as tenements, either in respect to light, ventilation, water-supply, privacy or facilities for cleanliness. . . . The most cursory examination shows that the death-rates are very high where there are rear tenements; running up to 61.97 — an enormous death-rate — in the old First Ward, and being 27.66 for the entire city, against 22.21 for the single tenements. If we take the death-rate of children as a test, the rear tenements show themselves to be veritable slaughter-houses."

The report recommends an increase in the tenement-house inspection force of the Board of Health and also that the sanitary police force be augmented by fifteen additional inspectors. After referring to the necessity of parks in the tenement-house districts, and to a number of small parks which have been already ordered, the report goes on to say: "But supposing that the above parks were actually completed, what would be the situation of the most crowded part of the city as to breathing spaces? The area of the city below Fourteenth Street is 2,628 acres, or nearly four square miles. The estimated population of this area on July 1st was 707,530, the park area is 64.65 acres, or but 2.55 per cent. of the whole area, while the proportion of the park area inside the city limits is a little over 7.5 per cent. of the whole territory. . . . Not only should additional small parks first be placed where at the moment they are most needed, but in character they should be especially adapted to the local conditions. Each of these parks should have a considerable portion of its area — possibly not less than one-half — finished as a public playground, and one might be almost exclusively dedicated to such purposes."

The report states that, while the bathing habit is increasing among the masses of the people, out of a total population of 355,033 covered by the Commission's inspection, only 366 persons have access to bathrooms in the houses in which they live. "The freer use of water by the tenement-house population," it continues, "would aid them very materially in their struggle for existence by assisting the elimination from their systems of the poisons absorbed in the sunless and airless dwellings. That several hundred thousand people in the city have no proper facilities for keeping their bodies clean is a disgrace to the city and to the civilization of the nineteenth century." The Commission favors as a beginning the building of a municipal bath providing every kind of bath at the cheapest rates.

The Commission makes twenty-one specific recommendations, and embodies them in bills for presentation to the Legislature. The first gives the Board of Health authority to tear down buildings which are unfit for occupation and to compensate the owners. Another relates to the construction of tenement-houses in the future and provides for more light and air and diminished danger from fire. No tenement- or lodging-house shall occupy more than 70 per cent. of an interior city lot, or 90 per cent. of a corner lot, and each room must have a separate window opening to the outer air. Another bill forbids the use of wall-paper in any tenement-house, the better class of apartment-houses being excepted. Another bill provides for the construction of additional public parks, and another, that no school building shall be hereafter

erected without playgrounds, and that as rapidly as possible playgrounds be attached to the schools now existing. Another bill makes it mandatory upon the Board of Health to prevent over-crowding by requiring at least 600 cubic feet of air to each occupant of a tenement-house. Among other recommendations made are those for rapid transit facilities, more lavatories and drinking fountains, more electric lights and more smooth pavements. In conclusion, the Commission recommends the abolition of the present Tenement-House Board, which has not been found to accomplish the ends desired in its establishment, and that in its place another statutory commission upon the subject be created by the Legislature every five years.

## A CHAIR OF ANATOMY, PHYSIOLOGY AND HYGIENE AT WEST POINT.

WE have before us the annual report of the Board of Visitors to the Military Academy at West Point for the year 1894, and find therein that the sub-committee on Hygiene and Athletics, of which Dr. W. W. Keen, of Philadelphia, was chairman, strongly recommends the establishment at the Academy of a separate chair, to be filled by the Senior Surgeon of the post, for the instruction of the cadets in anatomy, physiology, hygiene and first aid to the injured. The reasons given in the report for the establishment of such a chair seem to us cogent, and in fact are such as would naturally present themselves to any one giving careful consideration to the subject — certainly to any one having had a medical training. Such a chair has already been established at the Annapolis Naval Academy, and is filled by a surgeon. The entire instruction in these important subjects at West Point is limited at present, it appears, to six advanced lessons (with five review), together with incidental allusions to various sanitary matters by the professors of chemistry and engineering; to this meagre provision is to be added one lecture by one of the medical officers on first-aid to the wounded.

That the sanitation of armies during war is not merely a medical question; that disease kills and disables a much greater number of men in an army than the weapons of the enemy; that many a valuable life has been lost, in the absence of medical officers, from want of knowledge of first-aid — these are propositions which we suppose few will dispute. If they are granted, the natural conclusion follows. The difficulty at West Point, of course, is that the time of the cadets is already fully occupied. Increased instruction could only be added in case that given in some other subjects should be curtailed. The Committee thinks that the subjects indicated are of more importance to those concerned than mineralogy and geology, and that time might be taken from these latter subjects so that more could be given to the former. This may be regarded as a matter of administrative detail, but the general position taken by the Visiting Committee seems to us a sound one.

The report commends most highly the general sanitary conditions prevailing at West Point, and remarks on the extremely favorable location of the post.

It appears that nearly one-fifth of the cadets require the aid of glasses, and suggestions are made to relieve as far as possible the continued eye strain incurred in reading, writing and drawing. A considerable proportion of the cadets, after leaving the Academy and giving up the incessant near use of the eyes, are able to dispense with their glasses.

Athletic sports and games are recognized by the superintendent as conducive to scholarship and discipline, and the hope is expressed that such pastimes may be encouraged to the [illegible]st, both for recreation and health.

In another part of this interesting report we find an urgent recommendation that increased attention be given to the study of English. Of a grand total of 7,837½ hours of study and recitation in the four years at West Point, over 2,000 hours are given to the mathematical branches, over 1,000 hours each to two other modern languages and to modern physics, 227½ hours to law, 565½ hours to chemistry, mineralogy and geology, and only 294 hours to English! Every officer, the report justly remarks, should know how to use the English language accurately and tersely.

## SANITARY CLIMATOLOGY.

THE general interest manifested in the subject of climate and its influence on health and disease has determined the Secretary of Agriculture, through the medium of the Weather Bureau, to undertake the systematic investigation of the subject.

It is hoped to make the proposed investigation of especial interest and value to the medical and sanitary professions, and to the large number of persons who seek, by visitation of health resorts and change of climate, either to restore health or prolong lives incurably affected or to ward off threatened disease.

The Bureau suggests that, "the study of the climates of the country in connection with the indigenous diseases should be of material service to every community, in showing to what degree local climatic peculiarities may favor or combat the development of the different diseases, and by suggesting, in many instances, supplementary sanitary precautions; also by indicating to what parts of the country invalids and health seekers may be sent to find climatic surroundings best adapted to the alleviation or cure of their particular cases."

The hearty co-operation of the various boards of health, public sanitary authorities, sanitary associations and societies, and of physicians who may feel an interest in the work, is asked to achieve and perfect the aims of this investigation.

No compensation can be offered for this co-operation other than to send, free of cost, the publications of the Bureau bearing upon climatology and its relation to health and disease to all those who assist in the work.

Co-operation will consist in sending to the Bureau reports of vital statistics from the various localities. That these reports may be of value, it is requested that they should be accurate and complete, and be rendered promptly and regularly. Blank forms of reports have been prepared so as to occasion as little trouble and labor as possible on the part of the reporter, and will be furnished by the Bureau on application.

It is hoped to publish soon a periodical devoted to climatology and its relations to health and disease. The publication will probably resemble in size and general appearance the present Monthly Weather Review. More detailed information will be furnished on application to the Chief of the Weather Bureau.

## MEDICAL NOTES.

The Cleveland Medical Society.— Dr. William E. Wirt has been elected president of the Medical Society of Cleveland, Ohio.

Johns Hopkins University keeps what McGill University Desires.— Prof. William Osler of Johns Hopkins University, will not exchange his present sphere of usefulness for one in Montreal.

College of Physicians of Philadelphia. — The annual election of the College of Physicians of Philadelphia was held January 2, 1895. Prof. J. M. DaCosta was elected President, and Prof. John Ashhurst Vice-President, for the ensuing year.

The Slaughter of the Innocents in London. — It is stated on good authority that a thousand infants perish in London each year, from suffocation due to being overlain by their parents in bed. On December 27, 1894, five inquests on the bodies of children who had died from this cause were held in London by one physician.

Professor Wölfler called to Prague.— It is probable that the chair of surgery at Prague, rendered vacant by Professor Gusrenbauer's call to Vienna, will be filled by Professor Wölfler, now of Gratz. Professor v. Ritter v. Hacker, docent at the University of Vienna, and a former assistant of Billroth's will be offered the chair at Gratz.

The Sixty-third Annual Meeting of the British Medical Association will be held in London on Tuesday, Wednesday, Thursday and Friday, July 30, 31, August 1 and 2, 1895. President, E. Long Fox, M.D., Oxon., F.R.C.P., Consulting Physician to the Bristol Royal Infirmary, Eng. President-Elect, Sir J. Russell Reynolds, M.D., Bart., F.R.C.P., F.R.S., President of the Royal College of Physicians.

The Sheppard Asylum. — The third annual report of the Sheppard Asylum, a hospital for mental diseases at Baltimore, Md., is at hand. The photographs with which the pamphlet is illustrated show the buildings and grounds of the institution to be exceptionally attractive from an external point of view, and the interiors also appear to be well arranged and pleasantly furnished.

Typhoid Fever and Oyster Eating.— According to the *British Medical Journal*, numerous cases of typhoid fever probably due to oyster eating have recently occurred in London. No complete demonstration, however, such as was made in this country in the case of the epidemic at Wesleyan University, has so far been made in the London cases, although strong probability has been established that oysters were in some cases the cause of contagion.

The Transmission of Tuberculosis by a Brass Horn. — Dr. Addison S. Thayer, in the *Journal of Medicine and Science*, reports the cases of three young men whose family history was good and who were themselves physically sound, who became infected with tuberculosis by using, as members of a brass band, a second-hand horn hired from a dealer. The possibility of tubercle bacilli being deposited in the convolutions of a horn, to the danger of subsequent players cannot be denied. The three users of the horn in question were the only members of the band who did use it. Two of them are now in Colorado and one in Southern Pines under climatic treatment for tuberculosis. To make the chain of evidence complete it is only necessary to take the horn to pieces and find tubercle bacilli in the dried spittle in its convolutions and joints.

The Treatment of Cholera by Intravenous Infusions of Salt Solution. — In Kronstadt between June 8 and July 21, 1894, 218 cases of Cholera were treated (J. Hazen Torn, *St. Petersburger Med. Woch.*, 49; from *Wratsch*, No. 34). Of 42 cases treated before June 23d, 27 died. On June 23d the treatment by intravenous infusion of salt solution was begun; 193 infusions were performed upon 124 cases. The immediate effect, as is usually the case, did not last. Of the 124 cases treated by infusion, 67 recovered, and 57 died. Of the 67 who recovered, 49 received one infusion, 16 two, and two received three infusions. Of the 57 who died, 22 received one, 22 two, 11 three, and two were given four infusions. Of the 124 cases treated by infusion, there were only 10 which did not belong to the severest type. Leaving out these 10 cases, we have 114 cases of cholera *gravis* with 57 recoveries and 57 deaths — a mortality of 50 per cent. Under the treatment by infusion of normal salt solution, then, the mortality is lowered to 50 per cent. Under the usual methods of treatment the mortality in these cases amounts to 75 per cent.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, January 16, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 82, scarlet fever 72, measles 56, typhoid fever 5. During the week ending at noon, January 23, 1895, the following cases were reported: diphtheria 70, scarlet fever 47, measles 75, typhoid fever 7.

THE FIRST ANNUAL REPORT OF THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE. — The first annual report of the Board of Registration in Medicine, has just been presented at the State House. The whole number of applications of all kinds received up to January 1st has been 4,390. The whole number of certificates issued has been 3,017. Of these, 2,817 have been issued to graduates and 200 have been issued to practitioners of three years' standing; 294 applications have been rejected, leaving some to be accounted for. A large number of these are simply awaiting engrossment, and certificates will soon be issued. Every application received has been carefully investigated and none has been rejected unless passed upon by the full board. A number of those recently received are now being looked up, and some among them no doubt will be found which should not be accepted. "Polk's Medical and Surgical Register" for the year 1893 gives the total number of practitioners 4,012, classified as follows: regulars 2,646, homeopathics 687, eclectics 221, not belonging to the foregoing classes 458. There are now four medical schools in this State which confer degrees in medicine. The receipts and disbursements of the board have been as follows: Up to January 1, 1895, the receipts for fees and paid to the treasurer have been $3,500. The disbursements have amounted to $2,462.08.

POISONING BY WATER-GAS. — Cases of poisoning by illuminating-gas of more or less severity have been rather frequent in Boston this winter. People should not forget that water-gas is more poisonous and has less odor than coal gas, that all gas furnished in this neighborhood now is water-gas, and that especial precautions should be taken in consequence.

THE MEDICAL SCHOOL OF MAINE. — The Medical School of Maine is said to be in prospect of an income of $8,000 a year from invested funds. For some reason the bequest has not as yet become available to the school.

THE ANNUAL REPORT OF THE RHODE ISLAND HOSPITAL. — During the year ending September 30, 1894, 1,730 patients were admitted; 8,163 cases were treated in the out-patient department; 270 surgical operations were performed, with 9 deaths; and 114 gynecological operations, also with 9 deaths. Sixteen autopsies were performed at the hospital during the year. Bequests amounting to $27,000 were received during the year. The deficiency account of the hospital stands at $18,309.91, which represents the excess over income of expenditures not covered by the subscriptions of guarantors since September 30, 1880. The amount reported last year was $18,341.03.

### NEW YORK.

CORPORAL PUNISHMENT FOR CRIME. — At a meeting of the Section on Public Health of the New York Academy of Medicine held January 9th, Dr. Andrew J. Currier read a paper on "Corporal Punishment for Certain Forms of Crime," in which he advocated the whipping-post, especially for wife-beaters. Mr. Elbridge T. Gerry, President of the Society for the Prevention of Cruelty to Children, who took part in the discussion of this paper, thought that flogging should also be used in the case of men convicted of assaulting little girls, and read the draft of a bill which he had prepared for presentation to the Legislature. This bill provides that any person who is convicted of a felony which involves injury to the person of the victim may, in the discretion of the court, be sentenced to not only the penalties provided now by law, but also to be flogged. The number of strokes, which are to be administered on the bare back with a whip or lash, is not to exceed forty, and such punishments are always to be given in the presence of a physician.

DR. BENEDICT APPOINTED CHIEF OF THE BUREAU OF CONTAGIOUS DISEASES. — At the last regular meeting of the Board of Health Dr. C. S. Benedict was appointed successor to Dr. A. H. Doty as Chief of the Bureau of Contagious Diseases, and Dr. Alonzo Blanvelt was made assistant to Dr. Benedict.

## Miscellany.

### THE PRIORITY OF THE DISCOVERY OF ANTITOXIN.

PROF. JAIME FERRAN, of Barcelona, has called the attention of the editors of the *Deutsche med. Wochenschr.* to a paper by him entitled "Nota sobre la vacunacion contra el envenenamiento difterico agudo experimental," bearing date April, 1890, in which a safe and practical method of immunizing animals against fatal doses of the diphtheria poison successfully employed by him is described. On the basis of this publication, which appeared eight months before Prof. Karl Fraenkel's communication on the same subject, Dr. Ferran claims the priority of the discovery. The Spanish bacteriologist's claim, together with the *pièces justificatives*, having been submitted to Prof. Karl Fraenkel, has been frankly acknowledged by him to be well founded. He says (in a letter published in the *Deutsche med. Wochenschr.* of December 27th) that after reading Dr. Ferran's paper he has been able to convince himself that the Spanish worker had in fact, in April, 1890, reported the result of prolonged experiments on the immunization of guinea-pigs against infection with diphtheria bacilli, adding, "there can therefore be no doubt that in this question decisive priority belongs to him."

Prof. V. Babes, of Buda-Pesth, also lodges a claim on his own behalf. He points out, in the same number of the *Deutsche med. Wochenschr.*, that whereas the first communication by Drs. Behring and Kitasato on the immunizing power of the blood serum of artificially immunized animals in the case of tetanus, was published in 1890 in the *Deutsche med. Wochenschr.*, No. 49, 1890, he, in co-operation with Dr. Lepp, had established the same principle as regards "a not less important infective disease" (hydrophobia) in 1889, in a paper published in the *Annales de l'Institut Pasteur*, July, 1889. Professor Babes, however, admits that to Behring belongs the credit of applying the principle to diphtheria. All he claims for himself

is that he took a definite part in laying the foundation-stone of the great and solid structure which Behring and his fellow-workers have raised.

## THE TREATMENT OF INOPERABLE MALIGNANT TUMORS WITH ERYSIPELAS AND PRODIGIOSUS TOXINS.

IN an article on this subject in the *Medical Record* for January 19th, Dr. W. B. Coley gives the following summary of his results:

Up to May 31, 1894, he had treated with mixed toxins twenty-five cases of inoperable sarcoma, eight of inoperable carcinoma, and three of sarcoma or carcinoma. In carcinoma he had noted marked improvement in a number of cases, but no cures. They were all very advanced recurrent tumors. In sarcoma he stated that there were six cases in which he considered there was a reasonable hope of permanent cure. Six months have passed, and none have shown any recurrence. Of two others which were merely mentioned among the tabulated cases as improving, one has gone on to entire disappearance of the very large tumor and promises to be a cure, and the other, a six-times-recurrent sarcoma of hand, is in perfect health at present, nearly two years after the beginning of the treatment. Since May 31, 1894, he has treated twenty-four cases of malignant tumors, all inoperable and mostly recurrent, with the mixed toxins. Of these cases thirteen were sarcoma and eleven carcinoma. In many cases of carcinoma the injections had an undoubted retarding influence, and in some the improvement was extraordinary, but in none did the tumor entirely disappear. In the cases of sarcoma the effect was far more marked; and although in a number of them the disease was so far advanced that there could be no possible hope of recovery, still the powerful controlling influence of the toxins was demonstrated. In three of the thirteen cases the sarcomata have entirely disappeared, and although no great length of time has elapsed the results in his older cases make it improbable that relapse will occur. Of his total of thirty-eight cases of inoperable sarcoma, therefore, nine promise to be permanently successful.

## Correspondence.

### MICRO-PHOTOGRAPHS.

ROXBURY, January 18, 1895.

MR. EDITOR: I condole with you on your ignorance, as pointed out by Dr. Mercer, of Syracuse (JOURNAL, January 17, 1895, p. 71), in your use of the word "micro-photograph" to denote what he calls a "photo-micrograph," which is, as he defines it, "a macroscopic photograph of a microscopic object." Dr. Mercer quotes Maddox and Woodward as authority for his use of the word; he might also have added Sternberg. He does not seem to be aware that you have on your side Robert Koch, Fraenkel and Pfeiffer, and all other German and Continental authorities. Possibly you may have had these stupid foreigners in mind when you perpetrated the blunder so kindly corrected by Dr. Mercer. Perhaps the bias of a foreign education may have disqualified you in some measure for the "correct" use of your mother tongue. Maybe you know too much Greek to be willing to use such a curiously constructed word as "photo-micrograph." If so, I am with you.

Sympathetically yours, "AUSLÄNDER."

### METEOROLOGICAL RECORD,

For the week ending January 12th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A. M. | Relative humidity. 8.00 P. M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A. M. | Direction of wind. 8.00 P. M. | Velocity of wind. 8.00 A. M. | Velocity of wind. 8.00 P. M. | Weather. 8.00 A. M. | Weather. 8.00 P. M. | Rainfall in Inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S.. 6 | 30.18 | 26 | 35 | 16 | 84 | 100 | 92 | S E. | W. | 18 | 2 | O. | R. | 0.40 |
| M.. 7 | 30.09 | 42 | 54 | 30 | 86 | 91 | 88 | S. | S.W. | 8 | 5 | O. | R. | 0.01 |
| T.. 8 | 30.24 | 40 | 47 | 33 | 88 | 95 | 92 | W. | N.W. | 12 | 10 | O. | N. | 0.11 |
| W.. 9 | 30.47 | 33 | 35 | 31 | 75 | 74 | 74 | N.W | N.W. | 8 | 8 | O. | O. | 0.11 |
| T..10 | 30.44 | 31 | 36 | 26 | 84 | 96 | 90 | N.E. | N.E. | 23 | 24 | O. | R. | 0.32 |
| F..11 | 29.86 | 42 | 50 | 35 | 92 | 78 | 86 | W. | S.W. | 3 | 14 | O. | F. | 0.73 |
| S..12 | 29.83 | 38 | 42 | 35 | 83 | 100 | 92 | S.W. | N. | 4 | 7 | O. | G. | |
| ☞ | 30.17 | | 43 | 29 | | | 88 | | | | | | | 1.71 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 12, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Scarlet fever. |
|---|---|---|---|---|---|---|---|---|
| New York | 1,956,000 | 1006 | 343 | 13.40 | 24.10 | .70 | 6.70 | 2.40 |
| Chicago | 1,040,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 495 | 171 | 8.20 | 19.40 | .40 | 7.60 | .20 |
| Brooklyn | 1,050,000 | 503 | 142 | 7.00 | 30.60 | .40 | 4.40 | .40 |
| St. Louis | 540,000 | — | — | — | — | — | — | — |
| Boston | 501,167 | 240 | 78 | 14.28 | 18.90 | .84 | 7.98 | 2.10 |
| Baltimore | 550,000 | — | — | — | — | — | — | — |
| Washington | 250,000 | — | — | — | — | — | — | — |
| Cincinnati | 325,000 | 130 | 39 | 12.55 | 13.32 | 4.62 | 3.85 | — |
| Cleveland | 325,000 | 101 | 26 | 16.00 | 10.00 | — | 1.00 | 14.00 |
| Pittsburg | 275,000 | 111 | 43 | 19.80 | 17.10 | 11.70 | 4.50 | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 77,754 | 37 | 12 | 10.80 | 13.50 | — | — | 10.80 |
| Charleston | 65,165 | 30 | 7 | — | 11.12 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 34 | 17 | 17.64 | 11.76 | — | 8.82 | — |
| Fall River | 92,233 | 30 | 14 | 3.33 | 23.33 | — | 3.33 | — |
| Lowell | 90,613 | 39 | 14 | 17.52 | 10.24 | — | 10.24 | 2.56 |
| Cambridge | 79,697 | 17 | 3 | 11.76 | 11.76 | — | 5.88 | — |
| Lynn | 65,125 | 15 | 1 | 6.79 | 6.79 | — | 6.79 | — |
| Springfield | 50,484 | 24 | 7 | 4.16 | 20.80 | — | — | 4.16 |
| Lawrence | 42,990 | 14 | 6 | — | 28.56 | — | — | — |
| New Bedford | 47,241 | 18 | 5 | — | — | — | — | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 9 | 0 | 11.11 | — | — | 11.11 | — |
| Salem | 35,155 | 12 | 4 | — | — | — | — | — |
| Haverhill | 32,925 | 6 | 2 | 16.66 | 16.66 | — | — | — |
| Malden | 30,309 | 7 | 3 | 14.28 | 28.56 | — | 14.28 | — |
| Chelsea | 29,806 | 15 | 8 | 26.77 | 13.33 | — | 13.33 | — |
| Fitchburg | 29,303 | 3 | 1 | — | — | — | — | — |
| Newton | 28,837 | 10 | 2 | — | 20.00 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,784 | 6 | 2 | 33.33 | — | — | 33.33 | — |
| Waltham | 25,058 | 8 | 0 | — | — | — | — | — |
| Quincy | 19,642 | — | — | — | — | — | — | — |
| Pittsfield | 18,842 | 5 | 2 | 20.00 | — | — | 20.00 | — |
| Everett | 18,585 | 3 | 2 | 33.33 | — | — | — | — |
| Northampton | 16,331 | — | — | — | — | — | — | — |
| Newburyport | 14,073 | 4 | 1 | 25.00 | — | — | — | — |
| Amesbury | 10,920 | — | — | — | — | — | — | — |

Deaths reported 3,013: under five years of age 993; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 331, acute lung diseases 640, consumption 317, diphtheria and croup 177, scarlet fever 56, typhoid fever 34, whooping-cough 18, cerebro-spinal meningitis 16, malarial fever 7, measles 6, small-pox (New York) 1.

From whooping-cough New York 10, Brooklyn 5, Boston 3, Haverhill 1. From cerebro-spinal meningitis New York 8, Worcester 3, Chelsea 2, Boston, Lowell and Hyde Park 1 each. From malarial fever Brooklyn 5, Cleveland and Everett 1 each. From measles New York 3, Brooklyn, Boston and Providence 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending January 5th, the death-rate was 18.9. Deaths reported 3,844:

measles 125, diphtheria 87, whooping-cough 63, diarrhea 45, fever 41, scarlet fever 35, small-pox (Birmingham 2, Liverpool 1) 3.

The death-rates ranged from 14 1 in Cardiff to 25.0 in Gateshead; Birmingham 20.7, Bradford 15.2, Burnley 19.4, Croydon 18.1, Hull 15.6, Leeds 24.1, Leicester 17.2, Liverpool 24.2, London 17.4, Manchester 23.4, Newcastle-on-Tyne 17.6, Nottingham 15.9, Sheffield 19.9, Swansea 23.7, West Ham 17.1.

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## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 12, 1895, TO JANUARY 18, 1895.

COL. JOSEPH R. SMITH, assistant surgeon-general, will be relieved from duty as medical director, Department of the East, to take effect about February 5, 1895, and will proceed to his home where he is authorized to await retirement.

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## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 19, 1895.

JAS. R. WAGGENER, surgeon, placed on waiting orders.

L. W. CURTIS, passed assistant surgeon, detached from Naval Hospital, Chelsea, Mass., and placed on waiting orders.

L. H. STONE, passed assistant surgeon, ordered to the U. S. S. "Alliance," January 22d.

J. G. AYERS, passed assistant surgeon, ordered to the U. S. S. "Olympia."

M. R. PIGOTT, passed assistant surgeon, ordered to the U. S. S. "Olympia."

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## OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING JANUARY 15, 1895.

CARTER, H. R., surgeon. To assume temporary command of Cape Charles Quarantine. January 7, 1895. Relieved from such duty. January 14, 1895.

PERRY, T. B., passed assistant surgeon. To proceed to Delaware Breakwater Quarantine Station for temporary duty and to rejoin station (Cape Charles Quarantine) upon completion of same. January 14, 1895.

WERTENBAKER, P., assistant surgeon. Granted leave of absence for seven days. January 3, 1895.

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## HARVARD MEDICAL SCHOOL.

### EVENING LECTURES.

The next lecture will be given on Thursday evening, January 31st, at 8 o'clock, by Dr. E. Cowles. Subject, "The Relation of Insanity to Neurasthenia." Physicians are cordially invited.

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## SOCIETY NOTICES.

THE WARREN CLUB. – A regular meeting of the Club will be held at 14 Marlborough Street, on Tuesday evening, February 5th, at 8 o'clock.

Dr. Homer Gage: "Movable Kidney."

W. E. PAUL, M.D., *Secretary*.

NORFOLK DISTRICT MEDICAL SOCIETY. – The Fellows of the Norfolk District Medical Society resident in Jamaica Plain, will entertain the Society at Arcanum Hall, 658 Centre Street, on Tuesday, January 29th, at 8 P. M.

Communications: "The Theories of Immunity and the Methods of Preparation Involved in the Antitoxin of Diphtheria," H. C. Ernst, M.D. "Clinical Results of the Use of Antitoxin," C. F. Withington, M.D. "A Severe Case in Private Practice Treated with the Antitoxin," O. F. Rogers, M.D.

Collation at 9.30.

The meeting will be called to order promptly at 8 o'clock, and members are requested to make special effort to be present at that time.

Attendants at the hall will take charge of horses, stable them and return them at close of the meeting, free of charge.

Centre Street electric cars pass the hall every ten minutes.

J. C. D. PIGEON, M.D., *Secretary*.

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## BOOKS AND PAMPHLETS RECEIVED.

Notes on a Few Clinical Experiences of Inherited Syphilis. Seborrhea. By Burnside Foster, M.D., St. Paul. Reprints. 1894.

Report of the Surgeon-General, U. S. Navy, Chief of the Bureau of Medicine and Surgery to the Secretary of the Navy. Washington. 1894.

Fourth Report of the State Board of Health of Colorado, Including the Reports for the years 1892, 1893 and 1894. Denver: Published by the State. 1894.

Transactions of the American Otological Society, Twenty-seventh Annual Meeting, Arlington House, Washington, D. C., May 29, 1894. Vol. VI. Part 1.

Four Months in New Hampshire, a Story of Love and Dumb Animals. Written for, and revised, copyrighted and published by the American Humane Education Society. 1894.

The Dynamics of Life, an Address delivered before the Medical Society of Manchester, October 3, 1894. By W. R. Gowers, M.D., F.R.S. Philadelphia: P. Blakiston, Son & Co. 1894.

United States Bureau of Education, Circular of Information, No. 1, 1894. No. 18. History of Higher Education in Rhode Island. By William Howe Tolman, Ph.D. Washington. 1894.

Twenty-sixth Annual Report Relating to the Registry and Return of Births, Marriages and Deaths in Michigan for the year 1892. By the Secretary of State of the State of Michigan. Lansing. 1894.

Statistiques et Observations de Chirurgie Hospitalière. Par la Dr. Polaillon, Chirurgien de l'Hôtel Dieu, Professeur agrégé à la Faculté de médecine de Paris; Membre de l'Academie de médecine. Paris: Libraire Octave Doin, Editeur. 1894.

Travaux d'Electrothérapie Gynécologique, Archives Semestrielles d'électrothérapie gynécologique Fondées et Publiées. Par le Dr. G. Apostoli, Vice-Président de la Société Française d'électrothérapie. Paris: Société d'Éditions Scientifiques. 1894.

Annual Report of the Medical Officer of Health of the Vestry of St. George the Martyr, Southwark. By F. J. Waldo, Diplomate in Public Health of the Royal College of Physicians and Surgeons (England), M.R.C.S. (England), etc. Southwark. 1894.

A System of Legal Medicine. By Allan McLane Hamilton, M.D., Consulting Physician to the Insane Asylums of New York City, etc., and Lawrence Godkin, Esq., of the New York Bar, and others. Illustrated. Vol. II. New York: E. B. Treat. 1894.

Higher Medical Education the True Interest of the Public and of the Profession. Two addresses delivered before the Medical Department of the University of Pennsylvania on October 1, 1877, and October 2, 1893. By William Pepper, M.D., LL.D. Philadelphia: J. B. Lippincott Co. 1894.

Castration for Hypertrophied Prostate. Removal of the Head of the Femur from the Lesser Sciatic Notch. The Removal, by Trephine, of Fluid as the Result of Acute Cerebral Meningitis, with Report of a Case. Fifty Cases of Rectal Surgery. By B. Merrill Ricketts, M.D., Cincinnati, O. Reprints. 1894.

Manual of Practical Morbid Anatomy, being a Handbook for the Post-Mortem Room. By H. D. Rolleston, M.A., M.D., F.R.C.P., Fellow of St. John's College, Cambridge; Assistant Physician and Lecturer on Pathology at St. George's Hospital, and A. A. Kanthack, M.D., M.R.C.P., Lecturer on Pathology at St. Bartholomew's Hospital. Cambridge: University Press. 1894.

Diseases of the Ear; a Textbook for Practitioners and Students of Medicine. By Edward Bradford Dench, Ph.B., M.D., Professor of Diseases of the Ear in the Bellevue Hospital Medical College; Aural Surgeon, New York Eye and Ear Infirmary; Fellow of the American Otological Society; of the New York Academy of Medicine, etc. With colored plates and illustrations. New York: D. Appleton & Co. 1894.

Textbook of Hygiene; a Comprehensive Treatise on the Principles and Practice of Preventive Medicine from an American Standpoint. By George H. Rohé, M.D., Professor of Therapeutics, Hygiene and Mental Diseases in the College of Physicians and Surgeons, Baltimore. Third edition, thoroughly revised and largely re-written, with many illustrations and valuable tables. Philadelphia: The F. A. Davis Co. 1894.

The Principles of Surgery and Surgical Pathology, General Rules Governing Operations and the Application of Dressings. By Dr. Hermann Tillmanns, Professor in the University of Leipzig. Translated from the third German edition by John Rogers, M.D., New York, and Benjamin Tilton, M.D., New York. Edited by Lewis A. Stimson, M.D., Professor of Surgery in University of the City of New York, Medical Department. With 441 illustrations. New York: D. Appleton & Co. 1894.

Sexual Neurasthenia, Its Hygiene, Causes, Symptoms and Treatment, with a Chapter on Diet for the Nervous. By George M. Beard, A.M., M.D., formerly Lecturer on Nervous Diseases in the University of the City of New York; Fellow of the New York Academy of Medicine; Member of the American Neurological Association, etc. Edited with notes and additions by A. D. Rockwell, A.M., M.D., formerly Professor of Electro-Therapeutics in the New York Post-Graduate Medical School and Hospital; Member of the New York Neurological Society, etc. New York: E. B. Treat. 1895.

# Original Articles.

## HINTS CONCERNING THE PERFORMANCE OF THE OPERATION FOR THE EXTRACTION OF SENILE CATARACT, BEING A RECORD OF PERSONAL EXPERIENCE.

BY HASKET DERBY, M.D., BOSTON.

A RECENT excellent and instructive article entitled "Practical Advice to Young Ophthalmic Surgeons in regard to the Operation for Cataract," by Dr. Hermann Pagenstecher,[1] contains so much valuable information in regard to the results of his own experience, that I was at first tempted to simply offer a translation of the whole for the columns of the JOURNAL. But subsequent reflection has convinced me that, as the aim of the author was to express his personal views and predilections, it might be well for a surgeon living in another country, dealing moreover with people varying from the Germans in habits, constitution and temperament, to state the conclusions at which he himself had arrived after many years of practice.

I have kept full notes of all the extractions of senile cataract made by myself, both at the Massachusetts Eye Infirmary, the Carney Hospital and in private practice since the year 1865. It is not my intention here to analyze them numerically or to give tables of results. My present purpose is simply to present to those now coming on the stage a *résumé* of the experience I have gained from the careful study of my different operations, the consequences of the various modifications in technique and after-treatment I have successively practised, and the subsequent history of the patients, followed up in many instances for a number of years afterwards. I by no means lay claim to wisdom superior to that of my colleagues, or maintain that my own conclusions are more apt to be correct than the ones formed by those who may differ from me. But thirty years of practical experience have instilled in me some positive convictions, and I give them for what they are worth.

It is my intention to discuss the best manner of restoring useful vision to the subjects of senile cataract. Confining then our study to this class of cases, I start with two axioms. The first, that no operation is to be done on one eye as long as the lens of the other is wholly transparent; the second, that, save in most exceptional cases, entire maturity is to be awaited.

In the great majority of cases both crystalline lenses are found to be affected, though rarely to the same extent. But this rule is not universal. One of the first cases of cataract in which I was consulted was that of a well-known surgeon of this city, then sixty-five years of age. One of his eyes was the seat of a mature, uncomplicated senile cataract, while the other was entirely free from disease. He retained the sight of this eye unimpaired and practised his profession to the day of his death, some ten years later. The relatively slight advantage this gentleman would have gained from the enlargement of his field of vision after a successful operation might have been more than met by the impression made on his general health through the prolonged confinement and interruption in his usual habits which his convalescence would have entailed.

In regard to maturity much is said at the present day concerning the possibility of the extraction of the lens, particularly in the case of aged people, in almost any stage of opacity; nay, the removal of the transparent crystalline is seriously proposed as a remedy for extreme myopia. My own experience leads me to believe that the absence of perfect ripeness invariably diminishes the chances of success, in many cases complicates convalescence, and always renders the satisfactory performance of the operation more difficult. Of course there are occasions on which, of two evils, the lesser must be preferred, and times when it is better to encounter the risk of removing a cataract that is not wholly ripe than to leave an aged patient, who has wholly lost the power of reading and writing, to the depressing effect of forced idleness. It was but last summer that I operated on one eye of a gentleman, eighty-five years of age, in whom cataract had for three years past been gradually developing. He had slowly reached the point of being unable to go abroad without attendance, and all power of reading had been lost. Yet his vision in the worst eye was fully one-tenth, and a view of the fundus could still be obtained through the partially opaque lens. He was a man of acute intellect and active habits, his health was now beginning to suffer from lack of exercise, and his morale was much impaired. In this case, if any, an operation on an immature cataract was justifiable, it being reasonable to suppose that the yet transparent corticalis was closely connected with the large nucleus and would escape with it. On performing the extraction this certainly seemed to happen, an apparently clear pupil being left and vision being good, but on opening the eye eight days later I found the entire pupillary area filled with opaque cortical, and vision reduced to perception of light. His convalescence was a lengthy one, but absorption finally occurred without inflammation; no secondary operation had to be performed, and he now has a vision of five-tenths and has resumed the direction of his business affairs.

The matter of prognosis is one on which the surgeon is invariably approached, one of the first questions put by the patient or his friends being as to the chances of success. It may safely be stated that, in an uncomplicated case of mature senile cataract, occurring in a reasonably healthy patient under or not much past eighty-five, where the cornea is fairly large, the pupil readily dilatable, and the conjunctiva as well as the lachrymal apparatus free from disease, the chances of regaining useful vision are at least eighty-five per cent., while those of total loss of the eye may be estimated at two per cent. Where the above conditions are fulfilled, this certainly agrees with my own experience. We operate, however, in many instances where they are not, and no law as to the effect of complications on ultimate success can be formulated.

As regards the place of performance of the operation I see no reason for departing from the principle I have always laid down, that it should be away from home, preferably in a private hospital or else in one of the private rooms in a public one. Care at the hands of attendants and nurses familiar with such operations will thus be secured, while the advantage of a place constructed and arranged for this special purpose must be greater than that afforded by the ordinary private house. There remains, moreover, the fact that the patient is removed from the occurrences of home-life, is not annoyed by officious relatives or well-meaning visitors, and escapes possible household troubles and cares. I always prefer that the patient should pass the preceding night in the room in which

[1] Monatsbl. f. Augenhlkde., November, 1894.

the operation is to be performed, that he may gain a knowledge of his surroundings before the application of the bandage.

*Preparation for the Operation.*— The patient should take a warm bath the evening before. An hour or so before operating the parts about the eye and the outer surface of the lids should be thoroughly washed with soap and water. I then saturate a thick compress with a solution of corrosive sublimate (1–5,000), and suffer it to remain on the closed eye till the cocaine is applied. After a drop of a two-per-cent. solution of cocaine has been instilled into the eye and has exerted its anesthetic effect, it is my practice to wash out the conjunctival sac thoroughly with the above sublimate solution. The slight irritation caused, in many cases, by the application of a solution of this strength to an eye that has not been cocainized seems to me undesirable.

The instruments, with the exception of the fixation forceps the rubber tips of which would thereby be softened, are dipped in boiling water, carefully dried with a piece of carbolized linen which is taken from the sterilizer, and laid on a glass-topped table that has been washed down with the same sublimate solution. The fixation forceps are to be dipped in absolute alcohol. There is no objection to immersing all the instruments in a tray filled with this liquid, but I do not believe it to be necessary. The hands of the surgeon, having been thoroughly scrubbed with sublimate soap, should afterwards be dipped in the sublimate solution. Should there be an assistant, he ought to adopt similar precautions. But I do not find the services of an assistant necessary, and cannot remember having taken one to a cataract operation in private practice for the past twenty years. With the disuse of ether it would seem that all necessity for additional professional help has disappeared, the patient having now full possession of his faculties and being able to help the operator by turning the eye in the desired direction. If the operation be performed in a hospital a trained nurse will, of course, always be present, and can prepare and pass the various applications and dressings, removing the latter from the sterilizer as they are needed.

*Shall Iridectomy be Performed or No?* — This is the burning question of the present day. In favor of leaving the iris intact may be mentioned the lessened operative interference with the eye, there being but one wound to heal instead of two, the cosmetic effect of a round central pupil, and the protection afforded by its spontaneous dilatation and contraction. Against simple extraction are to be alleged the increased difficulty in removing cortical substance that may remain behind from the pupillary area, and the great danger of prolapse of the iris. And, in consideration of this, I see no reason for departing from the belief I have always entertained that the average patient at the hands of the average surgeon stands a better chance of an uncomplicated recovery, and in consequence thereof of attaining useful vision, if iridectomy be performed. It is true that great and practised operators obtain excellent results in the vast majority of cases from simple extraction, and that many of them at this time are inclined to make it the rule, and the combined operation the exception. But even they must accept the fact that no amount of experience in selecting cases, or of manual dexterity in operating, can enable the surgeon to declare that in any given case iris prolapse may not occur. In a series of a hundred attempted simple extractions it will be found that six or eight iridectomies have to be done after the removal of the lens, on account of the difficulty experienced in maintaining reposition of the iris. And the performance of iridectomy at this stage is always a most delicate and difficult proceeding. And in from eight to ten other cases, out of the same hundred, iris prolapse takes place under the bandage, owing to some sudden motion of the patient or without assignable cause.

If this is the experience of the older surgeons, what might be that of the beginner? I maintain therefore that the young practitioner will do well to combine iridectomy with extraction.

After the instillation of cocaine, a two-per-cent. solution of which may be dropped in the eye at least twice before the operation, at three-minute intervals, the first step in the operation is the introduction of the spring speculum. That made by Weiss, of London, I consider the best. It is light and manageable, adapts itself to the face, has not too strong a spring, and can readily be withdrawn.

The cut being made upwards fixation is applied directly below the cornea. For this purpose I have discarded the ordinary toothed forceps, and employ the rubber-tipped ones used to hold the eyeball during the operation of tattooing the cornea. It is true that the hold we thus obtain is somewhat less firm, but it generally suffices, and unless the conjunctiva is very friable it is rarely wounded.

The cut is made at the sclero-corneal junction, and should extend over one-third of the periphery of the cornea, being crescentic in shape. Pagenstecher, whose view as to the cut I have here reproduced, advocates the formation of a conjunctival flap, from which I wholly dissent. He has already dwelt on the advantage of eliminating a second wound in the shape of the iridectomy, and yet now advises the infliction of one much larger and more external, involving a relatively large healing area. It has ever been my practice, on completing the corneal cut, to turn the blade of the knife forward and cut out as rapidly as possible, fixation being at once and finally desisted from.

Before proceeding to the iridectomy cocaine should once more be instilled. The patient then being requested to look down, and at the same time warned as to the possibility of slight momentary pain, as well as the necessity of avoiding any sudden movement at this critical moment, the iris is grasped at its pupillary edge and a small coloboma formed. In many cases no special pain is felt, the senile iris appearing to lose a portion of its sensitiveness. Should any iris tissue be caught in the corners of the corneal wound, it is well to free and replace it with the small flat rubber spatula before opening the capsule.

The speculum is now carefully withdrawn. If, in spite of the styptic action of the cocaine, any hemorrhage should now be present, it may be controlled by allowing the patient to gently close the eye, and by applying externally a wad of sterilized lint dipped in an ice-cold solution of the sublimate indicated above. From this time forth the operator himself raises the upper lid with the forefinger of the left hand, when it is desired to expose the eye. He is thus in a position to allow the eye to close at once, should a sudden loss of vitreous occur, and to avoid the aggravation of this accident which the removal of a speculum might

entail. The capsule is to be thoroughly incised in different directions with the cystitome. I see no advantage in the peripheric opening advised by some writers.

*Removal of the Lens.* — My own practice has always been to bring this about by pressure made at the base of the cornea, through the lower lid, the pressure being exerted by means of the back of the rubber scoop. After the escape of the lens any remaining fragments of cortical may be collected in the centre of the pupil, by judicious rubbing through the closed upper lid, and then chased to and made to escape from the wound by stroking the eyeball upwards through the lower lid, the patient the while looking a little down. If, as is often the case, the fragments are arrested at the wound by the coaptation of its edges, these may be held apart by means of the Daviel spoon, used simply to encourage separation and not introduced into the anterior chamber. Even here the services of an assistant are unnecessary. The surgeon holds the upper lid against the edge of the orbit by means of the little finger of his left hand, manœuvres the spoon between the thumb and forefinger of the same hand, and uses his right to propel the fragments of cortical substance towards the wound and out of the eye. The irrigation of the anterior chamber for cleansing purposes is a difficult and delicate proceeding, and, although in the hands of experienced operators it may sometimes be productive of good results, it is never to be advised the beginner, who had better run the risk of allowing a small amount of lens matter to absorb than follow a method the results of which are sometimes so harmful.

Should vitreous escape before the lens is removed, and especially if the latter shows a tendency to become dislocated backward or downward, the scoop (preferably that of Bowman) should be at once introduced and the lens extracted. As this is a contingency that may at any time occur, it is well to have the scoop in readiness and thoroughly disinfected before commencing the operation.

After the removal of the lens and the clearing of the pupil, the rubber spatula is to be passed into each corner of the wound, to free any fragment of iris or capsule that may have lodged there. A drop of a one-per-cent. solution of eserine, instilled into the conjunctival sac before closing the eye, tends to withdraw the iris from the wound and thus prevent prolapse. A sterilized bandage is then to be applied.

I always endeavor to operate in the early morning; and it is my custom to visit the patient again late in the afternoon and change the bandage, washing the outside of the eye with sterilized lint dipped in sterilized water, but not separating the lids. This is repeated thereafter once a day until the eighth day, when I make my first examination of the eyeball. It was in 1882 that I first [3] published my reasons for adhering to this plan of non-interference with the eye during the healing process. When students we had all been taught to examine the wound soon after the operation. Donders always did this the same evening. Graefe used to advise that, on the first removal of the bandage, the upper lid be gently raised and a hasty glance taken at the lower part of the cornea by the aid of a single candle. It was only by gradual degrees that I came to postpone the opening of the eye, the interval growing longer and longer, and I ever found that, within certain limits, the more I postponed my first examination the better was the condition of things. Of course, the rule is not invariable; there are cases where the skin will not so long support the irritation of continued pressure and requires earlier exposure to the air. And where pain, swelling, lachrymation and discharge warn us that the normal healing process is not going on, an immediate examination must be made.

In order to secure dilatation of the pupil I frequently wet with the usual solution of atropine the small piece of linen that is placed directly on the eye and serves to prevent fragments of lint from getting in between the lids. This is done daily for several days previous to opening the eye, and is found in the majority of cases to affect the pupil. It is especially desirable to do this in cases where cortical substance is known to have been left behind.

In regard to the claim that, after the operation of extraction, only one eye need be guarded, the lids being lightly closed with plaster; that the patient may be allowed to remain in a light room, and even to use the other eye; it may be replied that undoubtedly some eyes recover under these or even more unfavorable conditions, and that accurate and extended statistics must be substituted for vague assertion before the average surgeon will be justified in so serious a departure from precautions which have stood the test of long experience.

I seldom find it necessary to confine the patient to the bed more than twenty-four hours. On the afternoon of the operation a bed-rest may be used under the shoulders, and a half-sitting posture indulged in, a change always productive of much relief. After dressing the eye the following morning the patient is allowed to leave the bed and occupy an easy chair, wearing a loose wrapper. On the third day the ordinary clothing may be resumed and a walk up and down the entry allowed, an attendant being of course at hand. The mild form of mania that occurs with some old people a few days after the operation is largely due to the combined effect of darkness and solitude. Hence pleasant society is always desirable. A friend or attendant should be in the room most of the time, and the patient conversed with or read to as much as possible. At the hospital where I generally operate we have deep windows with drapery hanging in front of the recess, leaving room for the reader behind the curtain. But in other places a screen may be used, with a light behind it. After the first day or two I do not regard darkness of the chamber as desirable, a moderate degree of light being allowed to enter. Sudden changes of light are to be avoided.

Such an article as the present might be almost indefinitely prolonged. It is a record of personal experience and is to be taken for what it is worth. I have seen flap extraction with the triangular knife, the operation generally practised during my student days, modified later by previous iridectomy, entirely superseded by the method of Graefe, this in its turn reinforced by local anesthesia and asepsis, as well as changed in various details. In the face of such mutations, occurring during the life of a single individual, it is not improbable that we are on the threshold of even greater changes, and that the teachings given in the present article will before long offer a simply historical interest.

[3] Anesthesia and Non-Anesthesia in the Extraction of Cataract.

## APPENDICITIS.[1]

BY GEORGE W. GAY, M.D.,
*Surgeon to the Boston City Hospital.*

MR. PRESIDENT AND GENTLEMAN: — No apology is required for bringing before you for discussion upon this occasion one of the most important surgical affections of the present day. Appendicitis is important by reason of its frequency; by reason of its character, serious in all cases, and fatal in many; and also by reason of the grave difficulties attending its management in numerous instances.

Inflammation of the vermiform appendix varies in degree from a simple catarrhal affection indicated by a slight and transient bellyache; to sudden and complete gangrene of the whole organ attended by symptoms of most profound collapse, which may terminate fatally in twenty-four to forty-eight hours in spite of any and all modes of treatment. In not a few instances the symptoms are so slight, and give so little discomfort, that their true significance is not suspected, until frequent recurrence, or increased severity reveals the real character of the affection.

The chief source of danger from inflammation of the appendix, as you all so well know, is the resulting peritonitis. The danger is usually in direct proportion to the extent of the inflammatory process, general peritonitis being one of the most serious affections with which we have to contend. Not infrequently insidious in its approach, remitting in its progress, devoid of alarming symptoms, the patient is beyond all help before his real condition is apparent to the attendants.

Sudden abdominal pain, aggravated by coughing and tenderness, are the characteristic symptoms of peritonitis, and peritonitis in the male in nine cases out of ten is due to inflammation of the appendix. In the female the Fallopian tubes, ovaries and other pelvic structures require consideration before arriving at a final diagnosis. A painful, tender belly, whether the tenderness be local or general, should always suggest peritonitis to the observer, whatever other symptoms may be present, or absent. Rigidity of the abdominal walls, and fever render the diagnosis more certain. Tenderness or muscular rigidity more marked on the right side of the median line, together with vomiting and tympanites, are additional evidence in favor of appendicitis. Previous attacks also suggest the nature of the affection. In some cases of undoubted inflammation of the appendix, as shown by operation or autopsy, there is no localization of symptoms at any time, so that we are compelled to fall back upon the general statement already made, that peritonitis in the vast majority of instances means appendicitis.

The diagnosis is made almost certain by the presence of a bunch. This is usually situated in the right lower quadrant of the abdomen, but may be located near the liver or even upon the left side, in fact in almost any part of the abdomen. Instead of a bunch there may be marked local resistance on the right side in strong contrast to the elasticity of the opposite side.

Occasionally the tender spot and the tumor may be detected by a rectal or vaginal examination, both of which should always be made. The appendix is at times located deep in the true pelvis alongside the rectum, in which case the characteristic symptoms might not be apparent upon the surface of the abdomen, until late, or even not at all.

Again, a tumor may be obscured by distention, by rigidity of the muscles, or by great resistance to manipulations, so that its absence is of little importance, as regards the diagnosis. It is no unusual event to find large quantities of pus in the peritoneal cavity in the absence of a tumor, and of localized pain and tenderness. Even a tympanitic abdomen may contain a large amount of pus. Persistent pain, tenderness, and muscular tension tell the real condition of things inside. They indicate the presence of peritonitis, and that, as mentioned above, in the vast majority of cases met with in every-day work, means appendicitis, and should be recognized and treated as such.

The diagnosis being reasonably certain we next have to consider the management of the case. About half of the persons afflicted with this disease recover under simple treatment, such as rest, leeches, opiates, fomentations, etc. Of those, who undergo operation, from one-half to three-quarters recover. One of the most difficult questions arising in the treatment of the malady is to decide, what cases require operation, and also, when shall it be done. It is much easier for an experienced surgeon to decide these questions in his own mind at the bedside, than it is to lay down rules for others to follow. In a general way, however, it may be said, that the cases in which the symptoms are sudden, sharp and severe, thereby indicating perforation and gangrene of appendix, demand early and prompt operation, that is, on the second or third, and perhaps upon the first day of the disease. Cases of moderate severity had better be operated upon in three or four days, if there are no marked and sure signs of diminution of the symptoms. But frequent and careful observations are necessary to prevent one from being deceived by latent symptoms. No improvement is reliable until it has lasted for more than twenty-four hours. Too much reliance must not be placed upon the pulse and temperature, as they are often very deceptive in their character.

A patient with this affection is never safe until he can pass wind. I care not how favorable all the other symptoms may be, so long as he cannot get rid of the flatus in the natural way, he is in a condition to give anxiety to his medical attendant. Obstruction of flatus may be due to intestinal paresis, or to mechanical causes. Septic infection often produces paralysis of the intestines, and thereby allows of their great distention. In a fatal case at the Boston City Hospital last winter, Dr. Councilman, the pathologist, found that death was caused by portal thrombosis, that is, thrombosis of one of the mesenteric vessels, which produced paresis of peristalsis. The gravity of distention due to intestinal paralysis cannot be overestimated, as a fatal result is the rule. Rumbling of gas in the bowels is always a welcome sound, and one of the most favorable symptoms in peritonitis is a free escape of flatus.

Light cases of appendicitis require operation when the symptoms of improvement come to a standstill. I cannot agree with those, who say, that every case of appendicitis, however slight, should be operated upon. I still have some respect for the peritoneum. About half of the patients get well without radical measures, and unless time and experience shall prove that these people are pretty sure to have a recurrence, it is difficult to see any good reason for subjecting them all to

[1] Read before the White Mountain Medical Society at Hanover, N. H., July 31, 1894.

operation. I very much doubt if that practice will ever come into general acceptance by the profession.

Cases attended by frequent exacerbations are better treated by abdominal section. I should seldom, if ever, wait longer than the second relapse, before advising operation. Relapses and recurrences indicate a condition of things in and about the appendix which Nature cannot readily repair, and too much risk should not be incurred by waiting. I venture the assertion that more mistakes are made by late than by early interference.

It should be said that this question of operation might be affected by the patient's station in life. It is not as imperative that an early operation should be performed upon a person of means, who can command at any and all times the best professional skill, as it is in the case of one living a long distance from skilful aid, or of a poor man obliged to work for a living, and subject to all the risks and exposure incident to such a life. Moreover, the latter person can ill afford the time and expense for a long convalescence.

A tumor does not necessarily call for an operation. I know of several members of our profession, one of whom is an honored occupant of an important chair in your own medical school, who have recovered from attacks of this disease attended, among other symptoms, with a tumor. The bunch would indicate the site of the incision, rather than the necessity for an operation. In not a few of the worst cases, cases calling most imperatively for an operation, no tumor is present. To give exit to the pus, and to get rid of the source of irritation, is the object of the operation. In some instances there is no suppuration in the bunch. It is solid, and composed of inflammatory products, which do not soften and break down, but are removed by absorption. I would like to remark in passing, that an early appearance of the tumor indicates that the appendix lies close to the abdominal parietes, rather than deep in the iliac fossa, or true pelvis. In one of my cases the bunch made its appearance upon two occasions within twenty-four hours, and at the operation, after her recovery from the second attack, the appendix was found as above indicated.

For recurring appendicitis in which there is a distinct interval between the attacks, I believe most thoroughly in an operation for removal of the offending organ. This method of treatment is reasonably safe, and it is effectual. The risk of future, and perhaps of a fatal attack is thereby removed, and the mental anxiety, which is by no means an insignificant factor in the matter, is relieved. In short, the best of arguments, reason and experience are in favor of the operation, and nothing of importance can be brought against it.

Two attacks of appendicitis, even if slight, and not too far apart, justify an operation for removal. In one of our recent operations during the interval after the second attack in six months, the appendix was distended with a purulent fluid, threatening perforation at any time.

A patient with recurring, or "sleeping," appendicitis is in constant danger of an explosion, which may prove fatal in spite of the most prompt and skilful treatment; hence the very great importance of interfering at the proper time.

By way of summary then, I would say, that an operation is indicated: (1) In very severe cases, and immediately. (2) In moderate cases in three or four days, if the symptoms are not progressing favorably. (3) In slight cases, if they do not get well in a reasonable time, or do not steadily progress toward recovery. (4) In cases attended with frequent exacerbation without any distinct interval. (5) In recurring cases, and, as a rule, in the interval after the second attack. (6) Cases of doubtful diagnosis, in which the symptoms do not subside within a reasonable time, may be subjected to exploratory incision, with the expectation, that more good than harm will be done in the long run. (7) Patients who must live out of reach of competent medical attendance, as well as those in the humbler walks of life, may require operation under circumstances not otherwise advisable.

On the other hand, light cases, and those of moderate severity that show signs of improvement upon the third day, do not require operation during the first attack, providing convalescence is not interrupted or prolonged.

I would not advise operation during profound collapse, as I have never seen a person rally under these circumstances. General peritonitis does not necessarily preclude an operation, yet the prognosis is exceedingly grave in these cases. I have seen only one patient recover after laparotomy performed during a severe general peritonitis. As the result, however, is occasionally successful after operative treatment, as well as under the expectant method, the physician may be left to decide this very evenly balanced question for himself, according to his own notions upon the matter, with the assurance that he will find ample authority for whichever method he may select. My own custom is to recommend operation, if I think the patient's condition will enable him to get through it, and not succumb during its performance. I cannot urge too strongly, that each and every case of appendicitis should be watched very carefully until the fate of the patient is decided. He should be seen at least twice a day; and if the symptoms are very severe, he ought to be visited every four to six hours, if circumstances will permit. I fully appreciate the difficulties of carrying out these suggestions in thinly settled regions in the country, where the physician lives many miles away from his patient. Under these conditions operative measures might be resorted to at an earlier period, rather than run too much risk by waiting for further developments.

Peritonitis, as you know, is in many instances very rapid in its progress, oftentimes invading the serous cavity throughout its entire extent in a few hours. The shock and prostration under these circumstances is most profound, precluding in many cases any operative interference. Hence the importance of close and frequent observation, as well as prompt action, before it is too late to avail ourselves of the natural recuperative powers of the system.

I shall touch upon only a few points as to the manner of doing laparotomy for appendicitis. Two classes of cases are met with in our every-day work.

In the first, the incision leads directly into the abscess cavity, which may be a portion or the whole of the peritoneal space. In the most favorable conditions the disease is limited to a small part of this cavity by a retaining wall of lymph, and an operation is little more than opening a deep abscess. This may be done by the so-called Hilton method, which consists in dividing the tissues down to the transversalis fascia, puncturing the abscess with a blunt instrument, as a

director, and dilating the opening thus made to the desired extent.

In the second class of cases, on opening the peritoneal cavity, the disease is found to be walled off deep in the pelvis, or in a mass of intestines or omentum, and drainage is possible only through the general peritoneum. This is a very undesirable complication to encounter, as pus in the peritoneal cavity is one of the most dangerous conditions attending the affection. The peritoneum is to be protected by carefully packing sterilized gauze all about the abscess, leaving a space in the centre or to the outer side for the exit of the discharges and for drainage. Care is to be taken in the manipulations that the abscess is not prematurely ruptured, thus allowing the pus to escape into the peritoneal cavity among the coils of the intestines before the packing is complete. Everything being in readiness, the retaining wall can usually be broken down easily with the finger, and the examination carried to the desired extent.

The cavity of the peritoneum, or of the abscess, having been opened, several difficulties may now be expected. Naturally the first object to be sought for is the appendix. In the late cases it may have sloughed off, when it will very likely escape in the discharge, together with the little fecal mass so often found in these conditions. Not infrequently, however, it will be so covered over by exudation and adhesions, as to be indistinguishable from the other structures, either by sight or touch. And just here comes up the important question, as to how far the search for the offending member shall be carried. I think that the present concensus of opinion is in favor of doing much less violence to the parts in our endeavors to find and remove the appendix, than formerly. It is no easy matter to detect it, and to dig it out of a mass of adhesions, in which may be omentum, intestines, blood-vessels, etc., all located deep in the pelvis. Nor are such efforts, which are necessarily made in the dark, and largely by the sense of touch, free from danger.

So far as I can judge from the experience of others, as well as of my own, it makes little difference in the immediate result, whether the appendix is removed at the time of the operation or not. Dr. Miles F. Porter, of Fort Wayne, in the *American Journal of Medical Sciences* for December, 1893, gives a table of 448 cases of appendicitis treated in various ways. In 122 instances the appendix was removed at the time of the operation. The recoveries were, in round numbers, 80 per cent. One hundred and fifty-four cases were treated by simple incision and drainage; the results were 81 per cent. of recoveries. This difference is not of sufficient importance in itself to influence the operator's action. If future experience shall prove, as it now bids fair to do, that patients do as well when the appendix is left as they do when it is removed, the labors and anxieties of the operator, as well as the danger to the patient, will be very much diminished. For my own part I do not search half as curiously for this organ, as I formerly did. If it is pretty readily found, an effort is made to remove it; otherwise the case is treated like any deep suppuration.

Another important point requires a moment's notice here, and that is the future condition of the patient. Does removal of the appendix render him any less likely to recurrence? While time and experience will not yet allow us to decide this point too positively, I think that recovery is more sure and speedy, and relapses rather less common in those cases in which the appendix has been removed, either by the surgeon or by natural processes. I have never seen a recurrence after removal of the tube; I have seen two or three relapses under the opposite condition.

According to our present light, however, relapses are not common enough to justify too earnest and thorough search for the appendix at the time of operation. The danger from infecting the peritoneum, and from too prolonged manipulations increasing shock and prostration, outweighs any benefit which may be expected from a removal of the appendix under the above circumstances.

In searching for this organ, experience proves herself to be a most valuable teacher. The practised finger in most instances is enabled to detect the hard, cord-like body of the appendix, and by careful manipulations to sever its attachments, and bring it up into sight. Its mesentery having been tied off, a ligature is applied as near to the base as possible, and the free portion is cut away.

Some surgeons invert the end of the stump, and bring the serous surfaces together with sutures, a plan that is feasible provided the tissues are not too friable. There are successful operators, however, who do not apply any ligature at all. They imitate Nature in the management of the stump by simply letting it alone, and allowing it to heal by granulation. As patients do well under both methods of treatment, one is not disposed to be too dogmatic in the matter. Personally I use ligatures and sutures in dressing the stump, as I believe in taking every precaution to prevent intestinal leakage, and also to hasten the repair of the parts.

I used to fear that silk placed at the bottom of a suppurating cavity tended to keep open the sinus, and thus to prolong convalescence by acting as a foreign body. I have no doubt that such is the fact in exceptional instances, but I do not think that it occurs often enough to influence our mode of treatment. The objections to catgut are that it is more uncertain in strength and durability, and is less readily sterilized. It is very good for ligation of blood-vessels, but in my opinion it is inferior to silk as a ligature for the appendix.

Fecal fistulæ are not very rare after the removal of the appendix in suppurating cases, but they usually close in one or two weeks of themselves. In rare instances, when complicated with tuberculosis, they do not heal, but serve as a factor in wearing out the patient by malnutrition, and exhaustion. The only permanent fistulæ I have seen in patients, who have in other respects regained fair health, have followed spontaneous rupture of the abscess. I cannot recall one after operation, although it doubtless may occasionally occur. In my own mind I have no doubt that fecal fistulæ and troublesome sinuses depend far more upon the want of vitality in the tissues involved, than upon any particular method of treatment. The key-note of the surgeon's duty is incision and drainage, and so long as that is fairly accomplished, we need not spend overmuch time upon the minor details.

For drainage I prefer the baked gauze, except in deep or large cavities requiring frequent irrigation, when two or more rubber tubes may be used in addition to the packing. In several of my later operations, I have not washed out the suppurating cavity at all, but have contented myself with making a free incision, removing the appendix, when feasible, and establish-

ing good drainage. Thus far the results have been as good as when treated by free irrigation. The latter is especially indicated in cases attended by abundant and fetid suppuration. The peritoneal cavity can neither be drained nor irrigated, when the seat of general adhesive inflammation. However freely the adhesions may be broken up, fresh ones will form within twelve hours, rendering irrigation and all methods of drainage ineffectual and unsatisfactory.

From the fact that many cases seem to be benefited by saline and other cathartics, there will always be a difference of opinion as to their real value in the early stages of appendicitis. The family physician has taught the surgeon some valuable lessons on this point. It is evident that cathartics can do only harm in cases of perforation with no external outlet for the discharges. They not only tend to liquefy the contents of the bowels, but they also increase peristalsis, and thereby may flood the peritoneal cavity with the most deleterious of all substances, liquid feces. Cases of distention from intestinal paresis are made worse by cathartics, as they may cause or aggravate the vomiting, which is a serious symptom in this affection.

After operation and the establishment of drainage, I know of nothing which relieves pain due to distention so surely and so effectually as salines given in small and oft-repeated doses. Few practitioners of experience deny the value of laxatives under these conditions. In the early stages of light or catarrhal cases they very likely are beneficial in establishing intestinal drainage by unloading the vessels of the portal system, as well as by removing irritating substances from the bowels. They are to be used carefully and judiciously, and only in mild cases, and always with the idea in mind that an operation may be necessary at any moment, even after the production of free catharsis. It is the opinion of many practical surgeons, that even the mild cases do as well under the opiate as under the cathartic treatment. While patients often recover under both methods, my own experience leads me to think, that, as a rule, the former is safer than the latter, and that the results are full as favorable.

Opiates are indispensable in the treatment of this affection, and yet the same objection to their use obtains as in strangulated hernia. They may obscure and cover up the patient's real condition. The amount of opiate required is an indication of the severity of the pain, and hence of the character of the attack.

In closing, allow me to say, as I said at the beginning, that this affection is one of the most important that comes to the physician's notice, not only because of its grave character, but because so much depends upon its proper management. Many of the worst cases will die in spite of the most timely and judicious treatment, but more will get well if promptly recognized and carefully managed. One of the most satisfactory reflections which a physician can have is, that he has shown good judgment in the treatment of his patients, and in no class of affections is this fact more evident, than in the prompt recognition and judicious treatment of appendicitis.

[Soon after presenting the above paper the writer was seized with his third severe attack of appendicitis. The first one occurred seventeen years ago; the second two years ago; each lasted about three months. The symptoms of the first two attacks were pain at the epigastrium, marked prostration and emaciation. There were no indications of trouble in the right side of the abdominal cavity. Just a week after the commencement of the last attack, pain, tenderness and muscular rigidity were pronounced in the right iliac region. Three days later laparotomy was performed by Dr. M. H. Richardson. There was an abscess below the brim of the true pelvis and behind the cecum, surrounded by old and fresh adhesions, implicating the sigmoid flexure and the rectum. The appendix was found to be shrivelled up to a small cord, and being firmly incorporated in the dense mass of adhesions was not removed. The principal features of the case were its long duration and unusual location of the symptoms. It was only during convalescence that pain was located outside of the epigastric region. During this time moderate griping at stool was felt behind the pubes, due evidently to the adhesions found at the time of the operation.]

## THE TREATMENT OF UTERINE FIBROIDS, WITH REPORT OF CASES.[1]

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In the last four years, 1890 to 1893, I have made notes on 35 cases of uterine fibroids. I have seen, perhaps, 50. Of the 35 cases, I operated on eight — three hysterectomies, four tubo-ovariotomies — and made one exploratory incision. Four were methodically treated by electricity. Two hysterectomies by suprapubic amputation were cured. One complete hysterectomy died of shock. The four tubo-ovariotomies recovered perfectly from the operation — three are now well after nearly or quite two years. The fourth died, perhaps six months after operation, probably from sloughing of a submucous fibroid. Of the four treated by electricity, one remains relieved of dysuria, one flows about as before, one continues to have flowing and dysmenorrhea, and one has died of malignant degeneration.

Case I. Large fibroid. Hysterectomy. Cure.

E. F., thirty-eight years of age, single. Entered Memorial Hospital December 3, 1892. Catamenia at fourteen, and normal up to present illness. Two years ago began to have pain in the right inguinal region, and noticed a hard tumor there. This grew slowly until nine months ago, since which it has rapidly increased. Has had severe hemorrhages, pain, difficulty in micturition, and has grown thin. Now the main tumor extends two inches above the umbilicus. Above this, and reaching to the ribs on the left, is a large, freely movable mass. Further to the right, two other smaller solid masses are felt. By the vagina the uterus is not felt separate from the tumor. Sound enters downward and to the left.

Operation, December 10th. Incision from pubes to a point half-way from umbilicus to xyphoid cartilage. Ascitic fluid four pints; no adhesions. The tumor was lifted out of the abdomen, the upper end of the incision closed with silkworm-gut sutures, and the patient raised to the Trendelenberg position. The right broad ligament extended high upon tumor, its upper edge below the tube being occupied by an elongated, flaccid cyst, the size of small intestine. The ligament was tied off with two silk sutures on outside, clamps on tumor side, and divided. On the left, the broad ligament extended not nearly so high, and was sim-

[1] Read at the meeting of the Worcester District Medical Society, November 14, 1894.

ilarly treated. The wire clamp was applied around the pedicle thus made, pins inserted and tumor removed. The pedicle, something over an inch in diameter, was placed in the lower angle of the abdominal incision, the parietal peritoneum sutured around it and closed above. Skin, fascia and muscle were united with silkworm-gut.

The wound was dressed and the clamps tightened every second day. The sutures were removed on the tenth day. On the eighteenth day the clamp broke, when the top of the stump was trimmed off with scissors, and the wire removed. She was walking about the room in four weeks, and discharged well in seven weeks. At one time there was a sinus through the cervical stump into the vagina, which entirely closed later. Temperature did not go above 101°. Patient has been in good health since.

CASE II. Fibroid, size of fifth month. Hysterectomy. Cure.

L. S., forty-three years of age. Entered Memorial Hospital March 18, 1893. Twice married. One child. Catamenia regular until seven months ago. Two months ago was in the hospital for pain and hemorrhages, and was sent home relieved. Symptoms soon returned, and were now so severe that operation was advised and accepted, the intention being to remove appendages if possible. The tumor extended three inches above the pubes; sound entered behind it. On making the opening into the abdomen, the left appendages were found accessible and removable; on the right side there was a small ovarian cyst with many adhesions. An attempt was made to remove these right appendages, but it was abandoned in favor of hysterectomy. It was difficult, first, to dislodge the tumor from the pelvis; then the pedicle was short, it was hard to get it into the abdominal wound; the bladder was at first caught in the wire loop and had to be peeled down.

The wound was closed and dressed in the usual way. The patient made a good recovery, and was about her room in five weeks. In this case the wire clamp bent, and was cut out of the stump at the end of the second week.

CASE III. Large fibroid. Hysterectomy. Death from shock.

A. J., forty-seven years of age. Entered Memorial Hospital November 18, 1892. Strong family taint of cancer. Catamenia at fourteen, and still regular. Tumor first noticed eight years ago in the left side, and supposed to be ovarian. Has had considerable difficulty in micturition, but the main symptom is a distinct failure in general health for the last four months. The abdomen is filled, from the pubes to the ribs and from ileum to ileum, with a hard, somewhat nodular mass; girth 32 inches. By vagina the tumor bulged the posterior wall far down. The sound passed backwards and to the right three inches.

Operation at 11 A. M., December 29th. The first incision failed to reach any peritoneal cavity. It was extended nearly to the level of the ribs, and the cavity entered above the tumor. The solid tumor was found to occupy the left broad ligament, splitting its folds and lifting the anterior layer from pelvic floor and anterior abdominal wall, carrying along with it the bladder, which was thus intimately attached to the tumor three or four inches above the pubes. This mass was attached to the uterus through its whole length, and crowded it far over to the right. The right broad ligament was occupied by an elongated cyst of the ovary lying behind the uterus and fibroid, and serving as a fulcrum to tip the cervix above the symphysis. The diameter was, perhaps, three inches, length six or eight inches. This cyst separated the folds of the ligament, and was close against the uterus. The fibroid was lifted from the abdomen, the upper part of the incision closed to retain the intestines, and the patient put in the Trendelenberg position. The sigmoid flexure was found firmly adherent on the *right* side of the tumor posteriorly. It was necessary to leave a piece of the tumor on the intestine. In attempting to separate it, a little opening was made through the intestine. It was closed with four Lembert sutures. The peritoneum was separated from the tumor as far as possible, and with it the bladder in front. A small tear was made in the wall of the bladder, but it was immediately sutured. This separation could be very well done on the left, but on the right a massive, fleshy, broad ligament had to be tied off in its whole length. The uterine arteries were secured on both sides by these ligatures, and the whole uterus removed with the tumor. The wound now left from the extensive enucleation on the left side and the long, thick, broad ligament on the right was of wide extent. The peritoneal flaps, however, covered it well. An iodoform gauze drain was drawn through the vagina, and the abdominal wound closed without further drainage. After being put to bed a quart of salt solution was passed into the median basilic vein, in addition to the usual measures for the treatment of shock; but the patient did not recover, and died at 8. P. M.

CASE IV. Fibroid, size of fifth month. Tubo-ovariotomy. Symptoms relieved.

A. B., thirty-six years of age, married. Entered Memorial Hospital, December 20, 1890. Four children. Miscarriage five years ago, not well since. Menses irregular and profuse during this time. Patient has a hard, symmetrical fibroid, extending half way to the umbilicus. It was impossible to introduce a sound.

January 16th, the ovaries were removed. They were easily accessible, and there were no adhesions. She had considerable hemorrhage on the third and fourth day per vaginam. Patient was discharged well in three weeks. I have heard from her from time to time since; she has had no recurrence of symptoms.

CASE V. Large multilocular fibroid. Tubo-ovariotomy. No permanent relief.

M. M., colored, thirty-five years of age, married. First entered Memorial Hospital, December 30, 1890, when a fibroid double the size of a hen's egg was removed from vagina. It was attached to the lower part of the uterus by a pedicle one inch in diameter.

In May, 1892, she passed naturally, by the vagina, a fibroid as large, according to her own statement, as a man's fist.

August 28th of the same year, having just been admitted to the hospital, she was delivered in the same way of another fibroid as large as two fists. After this she was discharged, and readmitted September 24th. The record of physical signs October 12th, is as follows: Tumor reaches nearly to umbilicus, is in two large lobes — one anterior and nearly median, the other posterior and to the right.

October 22d, tubo-ovariotomy was done. The tumor, reaching nearly to the umbilicus, so occupied

the broad ligaments as to leave the pedicles very short, and in removing the ovary bits of ovarian tissue were left on the stump on each side; these were thoroughly cauterized. The patient made a normal recovery, and was discharged well in three weeks.

Four months later she had a considerable hemorrhage of three weeks' duration. Now, two years after the operation, the tumor has very much increased in size, and she is having a good deal of hemorrhage. A hysterectomy would have been the proper operation.

Case VI. Fibroid filling the true pelvis, causing pressure symptoms. Tubo-ovariotomy. Woman two months pregnant. Goes to term. Symptoms relieved.

K. G., thirty-eight years of age. Entered Memorial Hospital, March 18, 1891. Married two years. Catamenia regular until nine weeks ago; none since. No symptoms until four days ago, when she became unable to pass water. She has required the catheter since. The pelvis was found to be quite fully occupied by a fibroid which crowded the uterus tightly forward against the pubes. Laparotomy was done March 24, 1891. The tumor filled the pelvis very closely, the ovaries lay so far behind it as to be difficult of access; still by twisting the tumor from one side to the other they were reached and tied off. The ligature on the left side slipped off, leaving a long wound along the upper edge of the broad ligament. Considerable time was spent in securing the bleeding points. A rubber drainage-tube was left in for two days. She was discharged well at the end of three weeks.

This patient was confined at term of a living child on November 8th following, and must have been about two months pregnant at the time of operation.

Case VII. Fibroid, size of seven months. Tubo-ovariotomy. Temporary relief. Death, six months later, from sloughing fibroid.

H. K., thirty-five years of age. Entered Memorial Hospital, April 16, 1891. Married nine years. Catamenia at twelve, and regular till one year ago. Since that, increasing hemorrhages; pain, too, has been severe, requiring opiates. She is becoming exhausted by pain and loss of blood. The tumor was first noticed one and a half years ago; it now fills the pelvis, crowding the uterus forward, and extends above the umbilicus.

Operation, April 22d. The appendages were removed with considerable difficulty, there being a hemato-salpinx the size of a goose's egg on the left side, the right appendages being concealed far down behind the tumor, and both having adhesions.

The patient made a good recovery, and was discharged May 8th. She died six months later, probably from septicemia caused by a sloughing, submucous fibroid.

Case VIII. M. W., forty-nine years of age. Entered Memorial Hospital, January 30, 1890. Twice married, the last time six years ago. One child thirty years old. Not so well since her last marriage. Fell one year ago, and since that has had pain in her side and back. Per vaginam, uterus deflected to the right. On the right of the uterus, and connected with it, is a rounded hard tumor the size of a goose's egg.

Laparotomy was done, and a small fibroid was found in the right broad ligament, attached along two-thirds the length of the uterus. The woman being past the menopause, nothing was done, the symptoms not being sufficiently severe to justify a complete hysterectomy, which was the only way of removing the growth. The patient made a smooth recovery, and was temporarily greatly relieved by the operation.

I have used electricity, Apostoli's method, in cases of various kinds, but have records of only four cases of uterine fibroid, systematically so treated.

In one case, a woman of fifty-four, with a tumor the size of a child's head, where hemorrhage was the important symptom, sixteen applications relieved the flowing and greatly improved the condition of the patient. Three years later she died of malignant disease of the uterus and pancreas.

The second patient, forty years old, with a tumor of the same size, also with severe metrorrhagia, received no benefit.

The third case got temporary relief for very severe hemorrhage and pain.

The fourth case was quite relieved of dysuria.

The history of the surgical treatment of uterine fibroids begins with the publication of Kimball's (of Lowell) case in the *Boston Medical and Surgical Journal* in 1855. The first case was successful, and was followed by two unsuccessful cases operated on in the same way. The pedicle was tied with silk, dropped into the abdomen, and the ligature brought out at the lower angle of the wound. No further step was made for nearly twenty years.

In the early seventies Koeberle and Péan improved the operation, and established it on a scientific basis. The silk ligature was replaced by a wire clamp, and instead of being dropped back into the abdomen, the pedicle was fixed in the wound by long pins, and the peritoneum nicely sutured around it.

Then came the period of aseptic surgery, and renewed attempts at the intra-peritoneal treatment of the pedicle. These attempts resulted in what has been called Schroeder's method, where a wedge-shaped piece is removed, and the flaps of the pedicle thus left are united by tier sutures, the peritoneum being closed over all. Péan had obtained a mortality of 34 per cent. Schroeder reduced it a little, to 30 per cent. Martin, of Berlin, by the use of Schroeder's method with the addition of drainage through Douglas's pouch, got 22 per cent. Zweifel (Leipsic) in 1889 using a continuous chain suture of silk running across the pelvis from side to side, including both broad ligaments and the uterine stump, had a series of 22 successful cases.

At present the operation of abdominal hysterectomy is done in four different ways. The method by fixation of the stump in the abdominal wound still has followers, pre-eminently Bantock in England and Price in America. By several operators the pedicle is left in the peritoneal cavity. Others treat the pedicle extra-peritoneally on the floor of the pelvis, that is, after amputating the uterus the pelvic peritoneum is united over it, or finally a complete hysterectomy is done.

The results obtained by these different methods by large operators are all excellent, and vary astonishingly little. For instance, as reported at the International Medical Congress held this year in Rome, Martin reported a series of 26 cases, with one death, a mortality of 3.8 per cent.; de Ott, 24 cases, with one death; Bantock, 23 cases, with one death; Carle, 20 cases, with no death; Zweifel, 93 cases, with three deaths. Leopold [1] reports 20 cases, with no death, and mentions Brennecke's report of 19 cases with no

[1] Centralbl. f. Gyn., No. 26, 1894

death, making in all 225 cases with six deaths, a mortality of 2.6 per cent. These are selected statistics, and by no means represent the present average rate of mortality for the operation of hystero-myomectomy. Still it is a fact that five years ago the general mortality of the most frequent operators was 25 per cent., while now the same class of men have a mortality less than one-third as large.

In this country also the tendency is towards the operations of complete hysterectomy and supra-vaginal hysterectomy. At the meeting of the American Gynecological Society May, 1893, there were reported [3] from Polk 30 cases, with two deaths; Mann, 13 cases, with one death; Krug, 25 cases, with two deaths. Baer, in September, 1893, reported 37 cases, with two deaths.[4] Eastman,[5] 79 cases with eight deaths; Kelly [6] 50 cases, with three deaths; Baldy,[7] 41 cases, with four deaths; Edebohls [8] six cases, with no death. In all, 281 cases, with 22 deaths, a mortality of 7.8 per cent. If I were able to bring the American reports to as late a date as the foreign ones, the showing would undoubtedly be somewhat better still. This operation has been especially promoted by Polk of New York. He first described it in a paper read at the annual meeting of the American Gynecological Society in 1892. It consists in tying off the broad ligaments, making anterior and posterior peritoneal flaps, by peeling the membrane from the uterus, tying the uterine arteries, cutting through the vaginal junction, uniting peritoneum with vaginal wall anteriorly, posteriorly and laterally, with long catgut sutures, drawing these ligatures into the vagina and filling the vagina with iodoform gauze. Polk's record in May, 1893, was 30 cases, with two deaths, as stated above.

On equal footing with this plan stands the method of amputation of the uterus just above the vaginal junction, thus leaving a small uterine stump. Some operators constrict this stump in one mass; others in two or three portions; while others still, tie the uterine artery just as in Polk's operation, putting no ligatures on the stump. The best results in this kind of operation have been published by Baer of Philadelphia, and Zweifel of Leipsic. Baer ties the arteries, leaves only the vaginal portion, and this unligated, does not touch the cervical canal, and uuites the peritoneal flaps over the stump. Baer's latest statistics were 37 cases and two deaths. Kelly, after tying the uterine arteries, dissects the vesical peritoneum, amputates the tumor, cups the pedicle, brings the flaps together with silk sutures, and unites the peritoneal flaps over all with a continuous suture. He reports 50 cases, with three deaths. Zweifel, ties the broad ligaments with two interlocking silk ligatures, puts on an elastic ligature, removes the tumor by a wedge-shaped incision into the pedicle, then continues the interlocked suture, using catgut for uniting the stump flaps. He has published a series of 93 cases, with three deaths.

A few operators still adhere to the wire clamp and pedicle pins, but the results by total hysterectomy and supra-vaginal hysterectomy, with closure of the peritoneum over the stumps, have reached such a degree of excellence that the near future will probably see the abandonment of the old extra-peritoneal method.

The figures which I have quoted bring the operation of hysterectomy up to a level in point of success with ovariotomy. This accomplished, the question of indications for the operation has to be reviewed. The surgeon who counts upon 90 per cent. of cures, looks at the question quite differently from one who expects only 75.

The rule used to be to operate only on those cases which threatened the life of the woman or made it unendurable, now the surgeon finds no little favor who advocates hysterectomy for a very moderate amount of discomfort caused by the presence of a uterine fibroid. As always happens in such cases the ardor of success carries men too far; and not only is operation advised where it seems unnecessary, but, on the other hand, the dangers of uterine fibroid are unduly exaggerated, and a bold attempt is made to shake our faith in the old established belief that the menopause has an inhibiting influence on its growth, and that spaying for a fibroid is a reasonable procedure. And this attempt is indeed, in a degree, successful, for we no longer believe a fibroid of the uterus to be quite the innocuous thing we have been taught. Matthews Duncan exclaimed, "Who ever knew a woman to die of fibroid tumor?" I can recall four in my own experience. Many of you will be able to remember such cases; and we all know how unreliable a mere effort of memory is in these matters. I have heard an old practitioner deny that he ever had a case of ruptured perineum in his practice. The indication for surgical interference, however, is not so often impending death as the incapacity for enjoyment or utilization of life, brought about by pain, hemorrhage or pressure sequelæ.

At present it is useless to lay down exact indications for the operation; they vary according to the skill of the operator and the circumstances of the patient. The tumor which incapacitates a poor woman for work or the care of a family must be operated on, while the same tumor in a woman not obliged to work could be taken care of symtomatically without trouble.

As to tubo-ovariotomy, it has a mortality among the best operators of five per cent.; its field of operation is necessarily limited, and its results more or less uncertain. Under these conditions its range of application must, I think, grow less and less as the success of hysterectomy increases, although Pozzi, writing in 1890, says, "The number of surgeons who still prefer the operation of hysterectomy in all cases is becoming continually smaller." So rapidly are changes taking place nowadays in the field of abdominal surgery.

The question of electrolytic treatment of fibroid has been the cause of vigorous argument, and is not yet settled. To me it seems as though much good can be accomplished by it in relieving symptoms and restoring general health, though there is no doubt that the relief will oftentimes be temporary. The hope that it can cause any important diminution in the size of the tumor must be given up. It is certainly the best treatment in cases where for any reason an operation is not admissible.

[3] Transactions American Gynecological Society, 1893, p. 124.
[4] New York Journal Gynecology and Obstetrics, 1893, p. 795.
[5] Boston Medical and Surgical Journal, June 7, 1894.
[6] Bulletin Johns Hopkins Hospital, October, 1894.
[7] American Journal of Obstetrics, November, 1893, p. 596.
[8] Loc cit., p. 610.

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LONDON has sixty ambulance stations for the six thousand accidents that occur on her streets each year.

# Clinical Department.

## A CASE OF CONGENITAL DIAPHRAGMATIC HERNIA.

BY GEORGE G. SEARS, M.D.

The subject of these notes was born in the Boston Lying-in Hospital during my term of service as resident physician, and for the privilege of reporting them, I am indebted to Dr. W. L. Richardson.

The child, an apparently perfectly formed, seven-pound boy, was born in December, 1885, after an easy labor, the second stage lasting but an hour. Immediately after birth it gave two or three short, sharp cries, and then, though it seemed to make every effort, it was unable to produce a sound. Respirations became gradually shorter and quicker, cyanosis deepened, and death resulted an hour later. The only abnormality found was the position of the apex-beat in the right axillary line. Only a most superficial physical examination, however, was made, as all our efforts were concentrated in encouraging his attempts to breathe. The autopsy was made by Dr. W. F. Whitney, who found the following condition:

"The greater part of the small intestine, with the stomach and spleen, were found in the thoracic cavity, into which they had passed through a hole occupying the greater part of the left side of the diaphragm. The left lung was reduced to a single lobe (the upper), and pressed upwards and forwards. The right lung was normal, but pressed upward by the heart which was in its pericardium in the lower part of the right pleural cavity. The lungs were compressed, but could be distended. Nothing else abnormal noticed."

Although similar conditions are comparatively rare anomalies, they are yet sufficiently common for Lacher,[1] in 1880, to have collected 276 cases, including both the congenital and acquired forms, while Thoma[2] two years later collected 291, and since then a number of others have been reported. They have been found in patients of all ages, and have frequently remained latent for years and even till death, neither preventing men from leading active lives nor women from passing successfully through a number of pregnancies. Others, however, have caused more or less distressing symptoms, which are referable to a disturbance of the functions of the thoracic or digestive organs. They have not always proved incompatible with long life, even when the defect in the diaphragm was apparently as great as in this case, for Thoma gives the history of a man, fifty years old, in whom its left half was almost entirely wanting and the thorax contained the fundus of the stomach, at least half of the small intestine, a considerable portion of the transverse colon, the spleen and a greater part of the omentum. The direct cause of death was a right pleuro-pneumonia. From the limited respiratory area acute pulmonary affections not infrequently terminate these cases, when death does not result, for mechanical reasons, immediately or a very short time after birth.

Much less frequently strangulation has proved the cause of death, since diaphragmatic hernia are subject to the same accidents as those in other situations, and its possibility should therefore always be considered in obscure cases of intestinal obstruction. One such case, reported by Abel, is especially interesting because the correct diagnosis was made and surgical relief attempted, but the patient unfortunately died three hours and a half after the operation.

The size and contents of these herniæ have varied from a small bit of omentum to half the contents of the abdomen. According to Lacher the only organs, which have never been present, are the urinary bladder, the rectum and the genitals, but diagnosis is not possible clinically, unless the stomach or bowels have invaded the thoracic cavity. Typical cases — where the abdomen is retracted; the affected side of the chest expanded, tympanitic, and with little or no respiratory movement; the intercostal spaces bulging; the apex-beat and area of cardiac dulness absent or displaced; and on auscultation the possible presence of metallic tinkling or other musical sounds — would seem easy of diagnosis, confusion with a pyo-pneumothorax being the most likely source of error; but practically only about half-a-dozen cases have been correctly made out, and in most of these the diagnosis was considered only probable. The most reliable and constant sign is cardiac displacement, especially in left-sided herniæ, which are six times more frequent than right, since the usual causes can always be readily eliminated. Congenital transposition of the heart might lead to mistake, but the more frequent error seems to have been made in taking the displacement due to herniæ for a simple dextro-cardia. The amount of dislocation may vary at different examinations, according to the amount of distention of the thoracic portion of the stomach or bowels; and in doubtful cases Abel suggests the careful introduction of water into the stomach by means of a tube, and noting the position of the heart as water is added or withdrawn. Failure to arrive at a diagnosis has not always resulted so much from a lack of distinctive signs and symptoms as from oversight on the part of the physician; yet when over 300 reported instances can be collected, it is not so rare that the possibility of its occurrence should be forgotten in making a differential diagnosis between conditions which it may simulate.

[1] Deut. Arch. f. klin. Med., xxvii, p. 268.
[2] Virch. Arch., lxxxviii, p. 515.

## A FATAL CASE OF POISONING BY MAYO'S VEGETABLE VAPOR.

BY F. E. SWEETSIR, M.D., MERRIMAC, MASS.

John S., the patient, was a boy nineteen years of age, strong, well developed and muscular, never having been ill before. He was given Mayo's vegetable vapor December 20th, at 9.30 A. M., for the purpose of having two teeth extracted. The amount given was rather less than the average dose, about eight gallons, which he seemed to take easily. The teeth were extracted without pain and he apparently came out of the anesthetic normally.

After talking with the dentist about having some teeth filled, he left the office, apparently a well boy, and walked to his home a quarter of a mile distant. When he arrived there, however, he complained of feeling ill, and his condition was such that his mother became alarmed and sent for me.

I saw him at ten o'clock, about half an hour after he had inhaled the vapor. He at that time was apparently in a dying condition. His face and extremities were deeply cyanosed, and covered with cold

perspiration; pulse 170; respiration 34. He was conscious, and answered questions intelligently; but he was stupid, and was raising much frothy mucus and saliva. I immediately gave him hypodermically one-thirtieth of a grain of sulphate of strychnine, one-fiftieth of a grain of digitalin and half an ounce of brandy. Hot-water bottles were placed around him; and with plenty of coverings his couch was moved near an open window, although it was a very cold day. The dentist who gave him the anesthetic worked with me over the patient about four hours giving him in the meantime all the heart stimulants at hand, including nitroglycerine, aromatic spirits of ammonia and digitalis. The circulation improved; and at noon the pulse was 130, cyanosis less marked, and he said he felt better.

At 2 P. M. the heart-beat was 120 to 130, and the cyanosis had largely disappeared. At this time (2 P. M.) I left him, with instructions to the dentist to see him in an hour, and if he did not seem as well to call in a fellow practitioner, as I should not be able to come again until six o'clock.

His attendants said that he seemed improving until four o'clock P. M., when he slipped from the couch on which he was lying to the floor. They told him to let them aid him; but he insisted he was all right, sprung to his feet, and died in a very few moments of paralysis of the heart.

Personally, I have always denounced Mayo's vapor, it being prepared by a secret process; and as such I think it should not be used. In this section of the country dentists tell me it has been advertised to such an extent that a dentist has to have it in order to do business. Patients call for it, and will have nothing else.

This same dentist took from the same cylinder, the Sunday before, two gallons more of the vapor than this unfortunate boy inhaled, with no ill effect, while I lanced an ulcerated tooth for him.

The autopsy upon the patient showed great venous congestion of the lungs, the heart a third larger than normal; and the mitral valve consisted of practically only one large flap, which condition seemed to be congenital. This flap closed the orifice very well, so that there could have been but little leakage during life; and the closest questioning of the mother could bring forth no evidence pointing to any heart trouble. Other organs were normal.

I have never read or heard of an accident of this kind. All the fatalities from this anesthetic that have occurred have been in the chair and while under the anesthetic, not six hours afterward and after a walk of a quarter of a mile apparently in a normal condition.

## Medical Progress.

### RECENT PROGRESS IN DISEASES OF THE NERVOUS SYSTEM.

BY PHILIP COOMBS KNAPP, A.M., M.D.

(Concluded from No. 4, p. 83.)

#### SYPHILIS OF THE SPINAL CORD.

THREE years ago Erb[7] described a form of spinal paralysis of syphilitic origin characterized by spastic paralysis of the lower extremities, marked increase of the tendon reflexes, slight muscular spasticity, disturbances of micturition, and comparatively slight disturbances of sensation. Sachs[8] emphasizes the fact that there may be other forms of syphilitic spinal paralysis. In one case there was a flaccid atrophic paralysis with rapid recovery, and three cases were of a spastic type, with marked contracture, pronounced atrophy and sensory disturbances, and varying vesical symptoms. Sachs considers that the characteristic features of spinal syphilis are the distribution of the morbid process over the entire cord, with simultaneous involvement of all three portions; the slight intensity of the morbid process compared to its extent, some functions of the cord being retained while others are lost; a rapid change in some symptoms with obstinate persistence of others; and the frequency of earlier symptoms in the cord or in other parts of the nervous system. These conditions may permit the diagnosis of syphilis.

Gerhardt[9] thinks that most cases of spinal syphilis are due to disease of the vessels and membranes, which later involves the cord. Important symptoms for diagnosis are rigidity of the spine, shooting pains, girdle pains, paraplegia, and Brown-Séquard's paralysis. The cause of Erb's type of syphilitic paralysis is thought to be due to multiple lesions of the roots. Only rarely does syphilis give rise to symptoms of muscular atrophy, poliomyelitis anterior, or Landry's paralysis.

Lamy,[10] after a study of several cases of spinal syphilis, concludes that the commonest affection is a diffuse meningo-myelitis, accompanied by disease of the blood-vessels. The changes in the meninges and vessels are primary. There may be a syphilitic lepto-meningitis and pachymeningitis; the latter is most commonly situated in the cervical region. Spinal meningitis is often accompanied by cerebral meningitis, which is usually situated at the base of the inter-peduncular region and about the chiasma. The changes in the blood-vessels are first noted in the adventitia of the veins. The symptoms of meningeal disease are to be distinguished from those of disease of the cord. The prodromal period is characterized by meningitic pains in the back or head, ocular paralysis, and more or less severe cerebral symptoms. The second stage is characterized by spinal paralysis, usually presenting the type of a moderate transverse myelitis, spastic paresis of the legs with slight impairment of sensation and slight involvement of the sphincters. In the minority of cases the paralysis is acute and severe, and, if not treated, leads rapidly to death.

Kuh[11] has collected 62 cases of Erb's type of syphilitic spinal paralysis and allied forms with six autopsies, and he considers that syphilis is not infrequently a cause of myelitis. The disease began in 36 out of 52 cases within six years after the infection. In some cases cerebral symptoms are first noticed, but usually the trouble begins with increasing weakness and stiffness of the legs, often accompanied with paresthesia, or a girdle sensation. Pain is seldom severe. Anesthesia is less common. With the weakness of the legs there is very apt to be some disturbance of micturition, and loss of sexual power. The weakness is very apt to be greater in one leg, and seldom increases to complete paralysis. Contractures

[7] Neurolog. Centralblatt, March 15, 1892.

[8] Brain, Part lxiii, 1893.

[9] Berliner klin. Woch., No. 50, 1893.

[10] Nour. Iconographie de la Salpêtrière, No. 4, 1893.

[11] Deutsche Zeitsch. f. Nervenheilk., iii, 359, 1893.

are rare, but the reflexes are always increased. The course of the disease is very chronic and progressive. The prognosis, under proper treatment, is much more favorable than that of ordinary myelitis; 11 per cent. recovered, 70 per cent. were improved, and 7 per cent. died. Relapses, however, may occur. The lesions are chiefly in the dorsal cord, and in the posterior part of the lateral columns; later the posterior cornua and posterior columns may become involved. As a rule, the meninges are little affected, the trouble being due to syphilitic changes in the smaller vessels of the cord — the marginal vessels of Adamkiewicz.

### LIGATURE OF THE CAROTID.

In an appendix to a study of tumors of the parotid Kopfstein [13] has studied the cerebral symptoms which may follow ligature of the carotid, which is of much interest on account of the occasional necessity of tying the carotid as a preliminary to certain operations on the brain.

Pilz observed cerebral symptoms after ligature of the carotid in 165 out of 520 cases; Ehrmann in 22 per cent., Lefort in 30 per cent. Among the symptoms are headache, paresis, paralysis, coma, etc. One of the rarest symptoms is aphasia, which occurred only twice in Pilz's cases; once there was no paresis, and once there was hemiplegia on the opposite side. In general the cerebral symptoms after trauma are more common than those after ligature rendered necessary by any other special cause. In most cases the trouble is due to a simple ischemia of the hemisphere. The symptoms cease when a collateral circulation is established. Paresis or paralysis does not come on at once, because the brain is still saturated by the nutritive liquid. If the basal arteries are not sufficiently developed, or if they are atheromatous or occluded, the insufficient nutrition may lead to changes of structure. In such cases the autopsy shows cerebral softening. In other cases the cerebral symptoms may be due to purulent processes or to embolism. Maydl gives the following data for prognosis: When hemiplegia comes on at once or within twenty-four hours, the prognosis is bad, especially in alcoholism, syphilis, and subjects with spontaneous aneurism; hemiplegia coming on long after ligature suggests suppuration on the surface or within the brain. Death may occur suddenly or after some weeks of apparent health, as in all cases of cerebral abscess. Hemiplegia after thrombosis of the carotid extending to the basal arteries usually comes on in from three to eleven days after the ligature, and it may disappear slowly or lead to death in a few hours or eighteen days.

### EYE-STRAIN AND EPILEPSY.

Dodd [14] has studied the relation between errors of refraction and epilepsy in 100 epileptic patients. He found much less hypermetropia than in normal individuals, and much more astigmatism. In 100 epileptics there was 42 per cent. of simple hypermetropia, and 42 per cent. of astigmatism; in 50 normal persons there was 70 per cent. of simple hypermetropia and 16 per cent. of astigmatism. Twenty-five patients did not need glasses; 75 were ordered to wear glasses, and of these 52 reported. Thirteen had no fits while wearing glasses, during a period of from four months to a year; three remained *in statu quo;* and 36 improved while wearing glasses. Dodd claims that errors of refraction may excite epilepsy, and that in many cases the correction of such errors, combined with other treatment, will cure or relieve the epileptic condition. In some cases, where the error of refraction has been corrected the epilepsy will continue, generally in a modified form, in consequence of other irritation, even though the error of refraction may have been the exciting cause of the fits in the first instance.

Hern [15] in five cases of epilepsy, by partial correction of the error of refraction succeeded in diminishing the number of attacks in two cases, and in checking them entirely in one, the attacks returning when the patient no longer wore glasses. Stephenson, in the discussion that followed, urged the necessity of distinguishing between epileptic and hysterical attacks. In the latter any new form of treatment will often act favorably for a time.

Martin,[16] as the result of a series of observations, thinks that neither astigmatism nor hypermetropia can often be regarded as a cause of epilepsy, and that the correction of these conditions by proper glasses have no influence on the disease. Nevertheless he thinks that Stevens's observations indicate that epilepsy can in many cases be benefited by optical means, and that we should therefore in every case of epilepsy investigate the refraction.

[Dodd's statistics are apparently very encouraging, but we must remember that none of his cases were under observation for more than a year, and few of them more than a few months, and that most of them were given bromides; and also that many cases of epilepsy do very well for a short time under any change of treatment. Martin's conclusions from his own work seem far more in accordance with the best views upon epilepsy, than do the later conclusions which he is led to draw from Stevens's statistics. The influence of eye-strain in producing epilepsy seems to us extremely problematical.— REP.]

### ANGIONEUROTIC AND HYSTERICAL EDEMA.

Higier [17] discusses the acute circumscribed edema of the skin, first described by Quincke, which may accompany various neuroses, but which is more commonly an independent and obstinate affection. It may affect both the skin and the mucous membranes. Among the etiological factors are heredity, the neuropathic predisposition, local chilling of the skin, alcoholic excess, and physical and mental emotions. Vomiting, colic, hemorrhages from the mucosa, hemoglobinuria, and effusions into the joints are observed in the recurring forms. Rarely it has the character of an infectious disease. It lasts from a few hours to several days. It is probably of nervous origin, as is shown by the following facts: its preference for neuropathic individuals, the occasional direct inheritance, its onset after physical exhaustion or psychical trauma, the nervous symptoms which accompany it (paresthesia, neuralgia, colic), its occasional unilateral localization, and its improvement with the improvement in the nervous condition. Four cases were reported, three men and one woman. In one the edema was localized on the glabella and often came on after emotional disturbance; in another it affected the mucosa

[13] Casopis ceskych lékarn., Nos. 4 to 6, 1894. Ref. in Revue Neurologique, No. 14, 1894.
[14] Brain, Part lxiv, 1893.
[15] British Medical Journal, Sept. 30, 1893.
[16] Journal de médecine de Bordeaux, No. 13, 1893.
[17] 66 Versammlung deutscher Naturforscher und Aerzte in Wien. Neurolog. Centralblatt, Oct. 15, 1894.

of the mouth and pharynx, and came on after taking even a very small dose of antipyrine. In three cases there was a neuropathic condition, but no heredity. In the fourth case the patient was perfectly sound, but he had obstinate constipation with increased intestinal putrefaction. In only one case was there no recurrence. One case had slight albuminuria during the attack, and the edematous spot was warmer and white or reddish. Fever was never observed. Unless there is a removable cause the prognosis is bad, one case having seventy attacks in a year. Treatment is often futile.

The chronic form of angioneurotic edema is seen almost without exception in hysteria, but it is quite rare. The four cases reported occurred in young women, and in two cases it was diagnosticated as phlegmon, and once as osteomyelitis. No cause could be determined. It began with pain and paresis, and once with redness and local heat. The localization is unilateral, or in the region of the ankle, the forearm, or the hand and wrist. Its characteristic features are a hard swelling, elasticity, a pale color, and an increase of the edema in the morning, but these symptoms are not constant; in one case the edema at first was soft. Pallor is much less important. Sydenham speaks of a white hysterical edema, but in Higier's cases it would be proper to speak of it as red or variegated. The swelling is not always cold; the one case where the edema was reddish the temperature was increased. In only one case did the edema vary in intensity. When the cardinal symptoms are absent the diagnosis is difficult. One case seemed like an arthritis, and the diagnosis was established only by hypnosis and the occurrence of an hysterical attack. The swelling is often accompanied by local arthralgia, myalgia, paresis, cutaneous hyperesthesia or anesthesia, or vaso-motor and trophic disturbances. In two cases there was recurrence. The shortest duration was three months, the longest a year. In one case the edema recurred three times by auto-suggestion.

## Reports of Societies.

### MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

TWENTIETH ANNUAL MEETING, AT HOT SPRINGS, ARK., NOVEMBER 20-23, 1894.

(Concluded from No. 4, p. 89.)

THIRD DAY.— MORNING SESSION.

DR. FRANK P. NORBURY, Jacksonville, Ill., read a paper entitled

THE MENTAL SYMPTOMS OF CEREBRAL SYPHILIS: A CLINICAL STUDY.

He drew the following conclusions:

(1) Somnambulism and allied states; lapses of intelligent conceptions, with associated loss of memory, are mental symptoms of cerebral syphilis.

(2) Sudden somnolence, with ocular spasm or paralysis, points to syphilis; when preceded by headache and monoplegia, it is almost pathognomic. Headache, quasi-periodical, as defined by Gray, with marked insomnia, suddenly ceasing and followed by psychical disturbance, is due to syphilis.

(3) Melancholia or mania, when following periodical headaches, insomnia, or somnolence, is to be classified thus:

(*a*) With ocular spasm or other form of monoplegia or heterogeneous paralysis, it is due to syphilis. (*b*) Pseudo-paranoia. By this he means that cases presenting all the symptoms of paranoia, systematized delusions depending on hallucinations of sight, hearing, taste or smell, with slight impairment of general mental functions, are due to syphilis; as we know that syphilis causes isolated local losses of power, and it is noteworthy when the special senses are involved that mental derangement usually results. (*c*) Pseudo-paresis, characterized by fibrillary tremor of tongue, indistinct speech (partial or complete aphasia), uncertain and trembling gait, with delusions of grandeur, and occasional outbursts of maniacal excitement, pupillary involvement, all characteristic symptoms of paresis, but which yield readily to antisyphilitic treatment, may be said to be due to syphilis.

(4) Class four have had epileptiform and apoplectiform attacks. We find cases in which treatment was undertaken too late. The symptoms are those of terminal dementia, only occurring in patients of previously sound mental condition and with no special hereditary history.

DR. CHAS. B. PARKER, of Cleveland, O., contributed a paper on

THE SURGICAL TREATMENT OF INJURIES OF THE HEAD,

in which he presented the following conclusions:

(1) In any case of doubt as to the character of a head injury, explore by incision, if necessary.

(2) In the case of wounds, especially the smaller and punctured, enlarge them for exploration and cleansing.

(3) In all cases of fracture, depressed or fissured, operate, elevating the depression and exploring the fissure for a depression of the inner table, which so often occurs.

(4) Leave the principal fragments of bone after elevation, if surgically clean, even if entirely detached from the dura mater and pericranium, thus averting cerebral hernia, vertigo and other cerebral disturbances.

(5) All these operative measures should be conducted under the most rigid aseptic and antiseptic measures.

DR. B. MERRILL RICKETTS, of Cincinnati, read a paper on

(A) CASTRATION FOR HYPERTROPHIED PROSTATE; (B) REMOVAL OF HEAD OF FEMUR FOR DISLOCATION INTO LESSER SCIATIC NOTCH; (C) TREPHINING FOR PRESSURE AS A RESULT OF FLUID IN ACUTE CEREBRAL MENINGITIS.

In a case of castration for hypertrophied prostate, the author said he was inclined at first to make a suprapubic operation, possibly combining the suprapubic and perineal. After thoroughly considering the matter and explaining to the patient the probable results of the various operations, he decided to remove the testicles. After having the patient under observation for ten days, he proceeded to operate, removing the testicles. The arteries were twisted, the wound closed, and integument coapted with a continuous silkworm-gut suture. The patient rallied well from the chloroform, and suffered no inconvenience or pain

thereafter. The wound was examined on the fourth day, and primary union was found to have taken place. The patient left Dr. Ricketts's private hospital at the end of the sixth day. On the second day after the operation the patient told him that he could urinate with greater ease, and that the pain was slight; that he could sleep four hours at a time during the night, whereas formerly he had been getting up once every hour. This condition continued to improve during the patient's stay in the doctor's hospital.

TUMOR ALBUS OF THE KNEE-JOINT.

This paper was read by DR. WILLIAM E. WIRT, of Cleveland, O. The object of the paper was to present a summary of the points to be observed in the treatment of tumor albus of the knee-joint, and to call attention to the fact that most excellent results are obtained by the use of conservative measures. The author classified the treatment under the two headings of constitutional and local measures, and the local under the subdivisions of conservative and operative treatment.

DR. A. H. MEISENBACH, of St. Louis, read a paper on

RESECTION OF THE KNEE FOR SEPARATION OF THE LOWER EPIPHYSIS OF THE FEMUR.

The case was of two years' standing in a patient thirteen years of age. The author said separation of the epiphysis is a condition that may occur either on account of trauma or disease. There seems to be a difference of opinion among writers as to the frequency of its occurrence, especially as the result of trauma. As the result of disease of the bones (osteomyelitis), it is considered a not infrequent accident. Traumatic separation of the lower end of the femur occurs in about from one-fifth to one-third of all the reported cases, and in the majority of instances previous to the sixteenth year, seldom later. The forces that are necessary to produce this separation are various. Thus, during childbirth traction may produce it. Volkmann states that he has produced it when the hip is diseased, when making rotation in seeking for crepitation, or extension in the application of plaster-of-Paris dressings. Other forces are indirect external violence, usually of a twisting character, or lateral or at right angles to the axis of the limb. The readiness with which the dislocation of the separated diaphysis into the popliteal space occurs can be explained (1) on account of the anatomical structure of the surrounding parts; (2) the force and position of the patient, the popliteal space being in the direction of least resistance, while on the anterior aspect we have the quadriceps tendon, the patella, and the ligamentum patellæ. The occurrence of pathological separation of the epiphyses is regarded by the latest writers on surgical pathology and diseases of the bones as a not infrequent accident in diseases of the bones and joints. It is noted in osteomyelitis of the long bones.

THIRD DAY.— AFTERNOON SESSION.

TREATMENT OF TRAUMATIC CATARACT, ATTENDED WITH RAPID SWELLING OF THE LENS,

by JAMES M. BALL, of St. Louis, Mo.

For years the subject of traumatic cataract has been a *bête noir*. Cases of lenticular opacity caused by a foreign body which remains within the eye, are always extremely dangerous, owing to the introduction of pathogenic germs on the one hand, and the danger to the sympathetic ganglia on the other. Such cases must always remain the opprobrium of ophthalmology. There are many cases, however, of traumatic cataract attended by rapid increase of intraocular tension, with the production of iritis on irido-cyclitis, and ultimate excavation of the optic-nerve head in which the foreign body either lodges in the lens or is withdrawn at the time of the accident.

The proposition the author desired to advance was this: In cases of traumatic cataract with rapid increase of intraocular tension, an operation should be performed, and that operation should be not linear extraction, but an extraction made with the Graefe knife, and with the incision located in the corneo-scleral junction. The knife should cut from one-third to two-fifths of the corneal circumference, according to the extent to which the softening process in the lens has advanced. If glaucomatous symptoms supervene with softening of only a small part of the lens, the corneal incision should be large. If the softening involves the whole of the lens, the incision should be of less extent. The extent of the incision in the cornea, as far as healing is concerned, is of little importance provided we make an aseptic operation. The chief merit of the operation lies in the avoidance of the valve which is produced by the linear methods. In other words, the author's method permits of free evacuation of all the lenticular substance with the least amount of traumatism. An iridectomy is not made. All *débris* is removed at once. This cannot be accomplished by the linear method. The author then reported two very instructive and interesting cases.

DR. J. H. KELLOGG, of Battle Creek, Mich., demonstrated by diagrams and illustrations the deformities of American women resulting from neglect of physical exercise and the conventional mode of dress.

DR. LEWIS C. 'CLINE, of Indianapolis, Ind., read a paper entitled

SOME OBSERVATIONS ON SORE THROAT DUE TO CONCRETIONS IN THE TONSILS.

Cases of recurring tonsillitis or sore throat often develop without any apparent cause, but are doubtless due to chronic inflammation of the follicles, altered and retained secretions. Follicular concretions predispose to attacks of quinsy, and in the author's judgment are the cause of the majority of these cases, and they can be permanently cured by carefully hunting out and destroying all the crypts and pockets in which these bodies are formed. The writer reported several interesting cases which emphasized the point that he wished to make, namely, that perverted secretion of the follicles of the tonsils from catarrhal inflammation resulting in cheesy concretions, which remain as a smouldering fire ready to be fanned into a flame by the least exposure, is the cause of more sore throats and quinsy in adults than any or all other causes combined.

FOURTH DAY. — MORNING SESSION.

DR. ROBERT C. HEFLEBOWER, of Cincinnati, read a paper on

THE REMOVAL OF THE AUDITORY OSSICLES FOR THE RELIEF OF CHRONIC DEAFNESS AND OTHER ABNORMAL CONDITIONS.

After a thorough and exhaustive review of the history of operations to relieve chronic deafness from the earliest date to the present time, the author passed to

the indications for the operation. He believes that it is indicated in deafness caused by chronic catarrhal processes, as well as headache, vertigo, tinnitus, etc., accompanying this condition, adhesions and chronic suppuration from the middle ear, especially when the ossicles are necrotic. In seven cases reported, where the operation was made to relieve either deafness or tinnitus, or both, there were good results.

In closing, the writer would draw the following conclusions from his experience with this class of ear cases:

(1) No bad results attend the excision of the malleus and the incus; but removal of the stapes is not without the most serious danger, both to life and hearing.

(2) That the removal of the malleus and incus alone is far preferable to the removal of the stapes.

(3) The operation is of extreme service in chronic suppuration in suitable cases, frequently avoiding mastoid and other serious disturbances of an equally serious nature.

(4) It should be performed in cases where there is a high perforation, or where the membrana flaccida is perforated and where the ossicles are necrotic.

(5) Tinnitus, headaches of ear origin and vertigo are relieved.

(6) In suitable cases it is invaluable for relieving deafness, whether from chronic suppuration or from chronic catarrh and sclerosis.

THE NEATEST CIRCUMCISION.

DR. BRANSFORD LEWIS, of St. Louis, detailed a new and convenient method for doing this operation, which he practises.

DR. H. C. DALTON, of St. Louis, contributed a paper on

STAB WOUNDS OF THE PERICARDIUM; RESECTION OF RIB AND SUTURE OF PERICARDIUM; RECOVERY.

DR. G. FRANK LYDSTON, of Chicago, contributed a paper entitled

REMARKS ON THE RELATION OF RESIDUAL URINE TO VESICAL IRRITATION, ESPECIALLY IN PROSTATICS.

The writer said it is generally accepted that most of the symptomatic disturbances incidental to certain chronic bladder diseases, especially in cases of prostatic enlargement, are dependent upon the accumulation of residual urine. He has long been impressed with the idea that residual urine *per se* is not as important a factor in genito-urinary irritation as is ordinarily believed. He is satisfied that in a large proportion of adult males there is always a greater or less residuum of urine remaining in the bladder after micturition. If prostatic enlargement or other obstruction attacking the mouth of the bladder develop, we have the typical accumulation of residual urine characteristic of such cases. It will then be seen that there may be at varying periods of life extreme differences in the degree of accumulation of residual urine. The author believes that the residual urine is simply an incident upon which, if taken alone, the symptoms of vesical irritation in no wise depend. Ideally perfect drainage of the *bas fond* can only be accomplished by thorough drainage from above the tube through the trigone and out of the rectum. There were certain objections to this method which the author said it was necessary to dilate upon. He simply stated as his opinion that only by some such procedure can the *bas fond* be thoroughly drained.

DR. HANAU W. LOEB, of St. Louis, reported a case of

DOUBLE NASAL ATRESIA DUE TO SMALL-POX.

He spoke of the present failures in the treatment of webbed fingers and conditions due to the deposit of scar tissue. We realize quite readily the frequent futility of the treatment for the permanent relief of cicatricial contractions and adhesions resulting from syphilitic lesions of the pharynx, palate and larynx; so that while no great skill was claimed in the management of the case reported in the paper, yet the patient's condition after a year and one-half of observation merited attention.

LAPAROTOMY FOR PELVIC DISEASES NO LONGER A NECESSITY

by DR. R. STANSBURY SUTTON, of Pittsburgh.

The assertion found in the text of this paper was founded upon the following argument: (1) We have a substitute for laparotomy in total extirpation of the uterus and appendages by the vagina, either with or without morcellement. (2) The operation has already proven to be effectual and successful by Péan, Segond, Jacobs, and others in Europe, and Henrotin, Engelmann, Sutton, Edebohls, and others in the United States. (3) Total extirpation of the uterus and appendages per vaginam gives a lower mortality than does laparotomy for the removal of the appendages alone. Morcellement of small fibroid tumors gives a lower mortality than laparotomy for the removal of similar tumors. (4) These operations by the vagina shorten the convalescence of patients, who are out of bed on the seventh day. (5) In all cases of gonorrheal, tubercular, or other infectious type of endometritis with chronic salpingitis and chronic ovaritis, a cure is not effected save by total extirpation of the uterus and appendages. The vaginal route is the best. (6) In all cases of fibroid tumors of the uterus, not reaching above or quite to the umbilicus, when the uterus must be sacrificed, total extirpation of the organ, tumor and appendages by morcellement can be best effected per vaginam. (7) Small cysts of the ovary or broad ligament, or solid tumors of the ovary can be reached and by morcellement and puncture be removed through the vault of the vagina, leaving the uterus and opposite ovary and tube intact. (8) In all cases of pyosalpinx or of multiple pus centres with coexisting solidification of the pelvic roof, total extirpation by morcellement per vaginam is the only feasible operation, and it cures the patient. (9) Total extirpation per vaginam is followed by a cure in the greatest majority of cases as compared with laparotomy. (10) The following sequelæ after laparotomy do not occur after total extirpation per vaginam: Cancer of the uterus, adenoma of the uterus, tuberculosis of the uterus, gonorrheal infection, hemorrhages of the uterus, filthy catarrhal discharges from the uterus, ventral hernia, fecal and other fistulas, the mark of a wound on the abdomen. The nerve storms subsequent to total extirpation are not as great as after laparotomy. The patient is restored to perfect health; this is not the case in more than fifty per cent. of laparotomies for pelvic diseases. (11) The bacteriology of infectious disease demands removal of the

uterus with the appendages. (12) Total extirpation per vaginam is in strict conformity to anatomical relation. (13) The physiological results following total extirpation are free from jarrings, and the patient is functionally a smoothly running mechanism. (14) Laparotomy for these diseases is followed by all manner of physiological disturbances which affect the vascular, muscular, nervous and digestive systems. (15) In the face of this argument, laparotomy for pelvic disease is no longer a necessity, but in the author's opinion should be abandoned excepting in very rare instances indeed.

Dr. Henry O. Marcy, of Boston, read an essay on

MODERN SURGICAL TECHNIQUE.

This paper first emphasizes the importance of a most careful bacteriological training on the part of him who would become proficient in surgical practice. In the preparation of the operating-room, Dr. Marcy points out the ease and safety with which an ordinary living-room, by preference the kitchen, is made comparatively sterile, when from necessity the surgeon is called upon to act promptly and suddenly. In abdominal wounds, where irrigation is not advised, he substitutes for it a slowly flowing stream of oxygen gas from a compressed cylinder. This sterile gas is heavier than atmospheric air which it displaces, and as a consequence renders the wound less likely to infections from the products of respiration and atmospheric contamination. Dr. Marcy reiterates his well-known views upon the value of tendon sutures, buried in all aseptic wounds for the approximation and reinforcement of the structures, emphasizing the importance of abandoning the drainage-tube in all aseptic wounds and hermetically sealing the same with iodoform collodion. Aseptic wounds made in aseptic structures, aseptically closed and sealed, are always followed by primary union.

The Committee appointed to consider the

RECOMMENDATIONS CONTAINED IN THE PRESIDENT'S ANNUAL ADDRESS

submitted the following report:

(1) While this Association is loyal to the last degree in its affiliations and associations with the members of the regular profession, it still believes that it is not derogatory for a scientific physician to hold a patent on a mechanical or surgical device that proves of benefit to suffering mankind. It sees no reason why the genius and talent of an inventive physician should not be protected by law as well as that of any other man.

. . . . . .

(6) This Association unites in urging upon the Congress of the United States the propriety of appropriating sufficient funds for the proper maintenance and support of a medical school at Washington, whose purpose shall be the instruction and training of physicians entering the army in regard to requirements of the practice of medicine and surgery in the military service of the United States.

(7) This Association believes that in the proper education of physicians by adequate preliminary training, and a college curriculum of four years and a final examination for license by the State, lies a true solution of many, if not all, the much controverted questions of ethics; and that at the present day a furthur agitation of these questions by debate on the floor of societies met together for scientific advancement is unwise and injudicious.

. . . . . .

The report was signed by the Chairman, Dr. William Warren Potter, and by Drs. I. N. Love, T. H. Stucky, A. S. Garnett and Chas. B. Parker.

The Committee on Nominations made the following report: President, Dr. W. N. Wishard, of Indianapolis; First Vice-President, Dr. Thomas E. Holland, of Hot Springs; Second Vice-President, Dr. Chas. B. Parker, of Cleveland; Secretary, Dr. Frederick C. Woodburn, of Indianapolis; Treasurer, Dr. Harold N. Moyer, of Chicago.

Judicial Council — Drs. W. F. Barclay, of Pittsburgh, and A. H. Meisenbach, of St. Louis.

The next meeting will be held in Detroit, in September, 1895. Chairman of Committee of Arrangements, Dr. H. O. Walker, of Detroit.

## Recent Literature.

*Recherches cliniques et thérapeutiques sur l'épilepsie, l'hystérie, l'idiotie et l'hydrocéphalie.* Compte rendu du service des enfants idiots, épileptiques et arriérés de Bicêtre pendant l'année 1893. Par Bourneville, médecin de Bicêtre, avec la collaboration de MM. Boncourt, Cornet, Leloir, Jules Noir et P. Sollier. Vol. XIV. Avec 89 figures dans le texte, et une planche. 8vo, pp. lxiii, 372. Paris: aux bureaux du *Progrès Médical*. 1894.

The annual volumes of reports from the department for idiotic, epileptic, and backward children at Bicêtre, edited by Bourneville, always contain much of interest and value, but the present volume is more important than most of its predecessors. The first part contains the usual tables, reports on a new building for the Fondation Vallée to contain a hundred beds, and notes as to therapeutic and educational measures employed. In Bicêtre and the Fondation there are over six hundred children. The second part contains clinical studies of some of the more unusual cases, with reports of autopsies, and three elaborate papers by Bourneville, Cornet, and Noir. The first paper is devoted to a study of the surgical treatment of idiots as contrasted with the medico-pedagogical. After an analysis of eighty-two craniectomies reported by different writers, and of twenty-two autopsies of idiots at Bicêtre, Bourneville shows conclusively that craniectomy does not rest upon any substantial basis. The premature synostosis of the cranial sutures, upon which Lannelongue based his theory of the operation, does not exist, and there are deep and extensive changes in the brain not amenable to surgical treatment. The results of operation are slight, whereas medico-pedagogical treatment usually gives rise to considerable amelioration. Bourneville and Cornet report thirty cases of epilepsy treated with testicular juice; in eight cases the attacks were a trifle diminished; in twenty they grew worse; there was sometimes a slight increase in weight, but there was no improvement in the mental condition. The last article, by Bourneville and Noir is an elaborate study of chronic hydrocephalus, with many pictures of the brains and skulls of the cases reported. Here, again, surgical interference is deprecated, the best results being obtained by compression, revulsives, and educational methods.

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## THE PATHOGENY OF DIABETES.

THE pathogeny of diabetes, long wrapped in complete obscurity, is being elucidated by the researches of many modern investigators. We have alluded in former numbers of the JOURNAL to the labors of Pavy, of Mehring and Minkowski, of Lépine and others; and to-day we call attention to the recent communications of Chauveau and Kauffmann.

In 1886 these authors published a memoir in which they showed by experiments on horses the relation of glucose production and glucose combustion to thermogenesis and muscle-work in the animal economy. They conclude as follows: "In the glands as in the muscles, the work of the organs increases the destruction of glucose proportionately to the heightened activity of the combustions of which they are the seat. Where there is but little functional activity, there is only slight augmentation of the sugar consumed. Where the work is considerable, the consumption of sugar is equally considerable."[1]

In a subsequent paper read before the Academy (December 13, 1886), they point out the rôle of the liver in calorification and muscular work, and conclude that the glycogenic processes (especially glucose formation in the liver) are the more active the more any one or more of the organs and tissues are exercised, and *vice versa*. As long as the liver furnishes glucose to the blood in sufficient amount, the animal continues to produce the quantity of heat necessary for the work of the organs and the maintenance of the bodily temperature. Let the glycogenic function become retarded and glucose disappear from the blood in the vessels, then the organic combustions languish and death takes place by arrest of calorification. It is in animals subjected to inanition that this fact becomes most apparent at the time when the depleted and exhausted organism can no longer furnish to the liver the materials which enable it to perform its function of glucose-storer and distributor.

[1] Memoires de l'Académie des Sciences, January, 1895.

In a third communication to the Académie des Sciences, February 13, 1893, the same experimenters have given the results of a series of experiments on dogs rendered hyperglycemic by lesions of the central nervous system; then of another series of subjects rendered glycosuric by extirpation of the pancreas. In all these cases the comparative analyses of the arterial and venous blood showed that the latter is always more saccharine than the former, as it is in the normal state. In fact the proportion of glucose consumed in the capillaries during the hyperglycemic and during the normal state, as shown by their estimates, is about the same and seems to justify their conclusion "that the fundamental phenomenon of the consumption of glucose in the nutritive movements is not lessened when there is hyperglycemia, nor exalted when there is hypoglycemia."

In a fourth article published in the "Bulletins" of the Academy of Sciences, March, 1893, they sum up their conclusions concerning the relation of the pancreas to sugar formation in the liver:

(1) The glycogenic function of the liver is under the control of a certain regulating mechanism.

(2) The pancreas is an important part of this mechanism, as is indicated by the experimental diabetes of Minkowski and others.

(3) The influence of the pancreas is not exerted directly on the liver, but through the medium of the nervous system.

(4) The regulating centres are: (*a*) a check centre in the bulb; (*b*) an excitatory centre in the upper cord between the bulb and the origin of the fourth pair of cervical nerves. The nerves concerned are certain *rami communicantes* of the spinal nerves to the great sympathetic.

In brief (for we must pass over many ingenious and interesting considerations advanced to establish their positions), these writers believe that the pancreas secretes a product which diminishes glucose formation in the liver and increases glucose fixation. Their hypotheses differs somewhat from that of Lépine, who thinks that this product of the pancreas is a "glycolytic ferment" which destroys glycogen in the blood. These hypotheses may or may not be true, but the fact remains that destructive lesions of the pancreas are attended by a severe and permanent glycosuria. If now (as our authors believe, and as the French school of medicine generally teaches), every form of diabetes is due to a fault in the regulating mechanism of the liver whereby glucose formation is intensified above the needs of the economy, it is hard to escape the conclusion that the pancreas has an important part in this regulation; whether by a secretion stimulating glucose fixation or inhibiting glucose formation, or by some reflex nervous influence.

In a recent number of the *Semaine Médicale*,[2] Kauffmann returns to the subject of the pathogeny of diabetes, affirming in opposition to the School of Bouchard, "that the facts compel us now to abandon entirely the theory according to which chronic diabetes is due to a diminution of the destruction of sugar in the economy." He believes that it has now been experimentally established "that diabetic hyperglycemia is always due to excess of glucose production and not

[2] January 16, 1895.

to an arrest or retardation of carbohydrate-destruction in the capillaries of the tissues."

It will thus be seen that the French pathologists are insisting with renewed emphasis on the truth of Claude Bernard's fundamental tenet as to the glycogenic function of the liver and the hepatic origin of saccharine diabetes. It is the especial function of the liver to store up glucose under the form of glycogen, and to yield it up to the blood when needed, and it is by virtue of the regulating power which this organ possesses that in health the amount of glucose in the blood never exceeds one and a fraction per 1,000 parts. There is evidence that this storage power of the liver over glucose may be exceeded by excessive ingestion of carbohydrate, and the person may be temporarily diabetic. Or a more or less permanent condition of glycosuria may be brought about by nervous influences, poisons, etc., acting on the liver and increasing glucose production. "Diabetes," says Lecorché, "is a neurosis of the liver," and its causes may be central, peripheral, or reflex. The proximate pathological condition attending it is active hyperemia of the liver.[3] He reports numerous cases; in all tumefaction of the liver was persistently noted. This view is also held by Klebs, and apparently endorsed by Senator.[4] In passive congestion, however (as in chronic disease of the heart), the diabetes generally disappears. This is also the case with cirrhosis, cancerous, fatty, and other destructive diseases of the liver, at least when the lesions are far advanced; the diabetes no longer exists.

It might almost be a matter of wonder that these destructive diseases which abolish the glycogenic function of the liver should also cause cessation of the diabetes for they certainly destroy the power of the liver to fix glucose. At first sight this might be adduced as an argument against the hepatic origin of diabetes. But there can be little power in the organism to appropriate carbohydrate material when the liver is so profoundly altered. There is a general repugnance for sweets and starches, and appetite and digestion are at a low ebb. Perhaps also in these cases, there may be a compensatory action on the part of the intestinal villi, as Pavy intimates. He believes that no sugar is assimilated by the organism that is not first intimately blended with peptone and synthetized as proteid by the protoplasm of the villi of the intestines. What escapes the villi is stored away as glycogen by the liver. The protoplasm of the villi, as well as of the hepatic cells, must first be overcome before the person can become diabetic.[5]

## THE SURGICAL TREATMENT OF GENERAL PERITONITIS.

IN a paper read before the Philadelphia Academy of Surgery (October 1, 1894), Dr. Oscar H. Allis suggested a treatment for general peritonitis as striking as it is original. He points out the necessity of obtaining permanent drainage — simple washing of the septic peritoneal cavity will, and usually does, prove inefficient. We have the problem of the removal of the pus, fibrin, and inflammatory products which in a general septic peritonitis will certainly continue to form after a single washing — a problem of the greatest difficulty — and one as yet unsolved. The best practical methods so far suggested are drainage of the bottom of the pelvis by tubes or gauze brought out through the lower end of a median incision. This method, however, though efficient in draining blood and serous effusion after laparotomy, does not afford permanent drainage in septic peritonitis, for adhesions soon form between coils of intestine, abdominal wall, etc., transforming the peritoneal cavity into a series of pus pockets, the adequate drainage of which requires that extensive adhesions be broken up, only to re-form again with rapidity. Whether continuous flushing with warm sterilized water through tubes carried to the most dependent parts of the abdomen will be efficient can only be learned by trial.

The method suggested by Dr. Allis, however, is far more radical. He proposes that a long, median incision be kept open by packing, that rubber dam covered with cerate be tucked in between the abdominal wall and the intestine to prevent adhesions, that the whole cavity as far as possible be lubricated, and that the patient be kept, except at the times of dressing, in the prone position. The doctor states that this method is pure theory; with this we would agree, and add that the theory was admixed with very little regard for mechanical, anatomical or physiological facts. In the first place it is necessary to remember that patients with general peritonitis are sick, and that the prone position is never taken by a sick patient, as it adds the weight of the vertebral column and viscera to the amount to be lifted by the muscles of respiration, at each expansion and contraction of the chest and diaphragm. It is a thoroughly uncomfortable position for a patient with severe abdominal disease, and one which would be sure to hasten a fatal termination. Our author suggests that a thin well-padded strip of wood about three feet long, strapped transversely to the pelvis, might serve to keep the patient in the prone position. The details of arranging the matter he does not go into. The wisdom of keeping a patient critically ill from lying in a comfortable position by strapping him to a stick of wood so that he cannot turn on his back, might, it would seem, admit of question.

Another objection of equal weight would seem to be the impossibility of preventing the intestines from prolapsing through this wound, and becoming spread out in an artistic tangle inside the dressing. Every surgeon knows by experience what care is required to prevent intestine, if not adherent to the edges, from prolapsing through a long, unsutured wound, even with the patient on the back, especially if there is a slight cough. Dr. Allis must be a skilful dresser, if

[3] Etudes Médicales, p. 20.
[4] Ziemssen's Cyclopædia, vol. xvi.
[5] Physiology of the Carbohydrates, London; See also Boston Medical and Surgical Journal, August 23, 1894, p. 197.

he is able to keep intestines from slipping outside the abdominal wall against gravity as well as grease. It would, in our belief, be impossible to adjust so tight a binder as to prevent this untoward result.

Dependent drainage is undoubtedly what is wanted; but we should certainly confine our efforts to methods which would not be almost certain to kill the patient. Dependent drainage by incision in either flank, added to drainage of the pelvis, would according to our present knowledge be far preferable to Dr. Allis's theoretical method. If he ever puts his method in practice, we hope he will report his results.

## CASTRATION FOR HYPERTROPHY OF THE PROSTATE.

RELIEF from the distressing symptoms caused by prostatic hypertrophy has long been a surgical desideratum. A very large proportion of men who attain to the age of fifty-five and over, instead of spending the last years of their life in active pursuits, or rest and recreation earned by a well-spent life, are rendered thoroughly miserable from the effects of enlargement of this gland, and compelled to give a large part of their time and attention to the care of their urinary apparatus. There have, heretofore, been for these unfortunates but two alternatives: one, the temporary relief afforded by catheterization, necessarily continued for the remainder of life, and almost always bringing sooner or later infection of the bladder, with all its attendant and sequent results, which finally, after a time of gradually increasing misery carry off the patient; the other, prostatectomy, either suprapubic or perineal, promising at the risk of a formidable and dangerous operation, relief which is perhaps only temporary. Often on account of the dread of the operation it has been put off till cystitis, pyelitis, etc., have almost worn out the patient, and gained so firm a hold that the operation is either fatal, or fails to give relief.

Of late years, the observation that animals — dogs, sheep, calves, etc. — castrated when young have no prostates or only rudimentary ones, has led to experiments on animals, performed in this country by White, of Philadelphia, which have shown that castration causes atrophy of the prostate. If this operation could be applied to man, so as to diminish the size of an hypertrophied prostate, it was recognized that it would have obvious advantages over the old operation of prostatectomy. With modern aseptic methods the operation is almost devoid of danger. It is very easy and simple of performance. The only disadvantage attached to it is a sentimental one, which it would seem ought to have little weight in comparison with the severity and danger of the symptoms it is designed to relieve.

The first surgeon to perform the operation was Ramm, of Christiania, who in 1893 did two castrations for hypertrophy of the prostate. Since then it has been performed by Mansell-Moullin, in England, White, Ricketts, and others in this country; in all, thirteen cases have been reported. Other operations have been performed, but not yet published. In the reported cases the results have been almost uniformly favorable. Some men, previously obliged to lead a "catheter life," have been enabled by the operation to dispense with catheterization, others have been obliged to resort to the catheter much less frequently, and have not had to get up at night. An actual diminution in the size of the prostate has been noted.

A striking point about these cases is the short interval after the operation at which improvement begins. Greater ease of urination has been noted as early as the second day.

In view of the inherent objections of patients to castration, the operation of the division of the vas deferens has been suggested and tried, but we are informed with less satisfactory results.

As stated above, the suffering from the results of enlarged prostate is so severe, that sufferers might easily consent to lose testicles, or almost any other organ of their body, if relief were promised without serious danger. It is probable, in view of what has been already done, that cases will continue to be reported in the near future. The results will be awaited with interest.

## MEDICAL NOTES.

THE GERMAN CONGRESS OF INTERNAL MEDICINE will be held this year at Munich from the 2d to the 5th day of April. Professor von Ziemssen will preside.

A STATE EXAMINATION IN GEORGIA.—The new law providing for a State board of medical examiners (really, three boards — regular, homeopathic, and eclectic), went into effect on January 1st.

A PUGILIST IN A NEW RÔLE.— "The Medical Department of Vanderbilt University recently distinguished itself by inviting pugilist James Corbett to lecture to its students on physical culture. Even astonished comment pales before the shameful fact."— *Medical Record.*

JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.— No. 1, Volume 1, of this journal, published quarterly, has appeared. It is a handsome and well-printed periodical. The papers in this issue comprise the larger proportion of those read at the Montreal meeting.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY. — At the annual meeting of the Harvard Medical Society held January 26th, at Harvard House, the following officers were elected for 1895: President, Dillon Brown, M.D.; Vice-President, Charles L. Gibson, M.D.; Secretary, Theodore Dunham, M.D.; Treasurer, George E. Brewer, M.D.

THE DIAGNOSIS OF DIPHTHERIA IN PHILADELPHIA. — The Laboratory of Bacteriology of the Philadelphia Polyclinic is ready to undertake this examination and to report to physicians the bacteriologic

diagnosis of suspected cases, thus offering to perform for Philadelphia the same office which the Bacteriological Laboratory of the Harvard Medical School does for Boston.

CIGARETTE ROLLER'S CRAMP.— According to the *Medical Press*, "cigarette roller's cramp" must now be added to the list of acquired professional paralyses. Both in Spain and France it is said to be very prevalent. Intense pain in the joints of the hands and fingers of the workers, who are girls, supervene, and there is often inability for some time to approximate the thumb and index finger.

THE ANTITOXIN TREATMENT IN FRANCE.— The sum voted by the French Legislature for the carrying out of the antitoxin treatment was 100,000 francs. It is intended to make a grant in aid of the antitoxin treatment a permanent item in the French budget. In the estimates for 1895 appears a subvention of 80,000 francs to the Pasteur Institute for the preparation of antitoxin, together with one of 20,000 francs for the general purposes of the inoculation service.

COLOR BLINDNESS AMONG ASIATICS. — Among the publications of the German Asiatic Society of Tokyo, Japan, for 1894, is a paper by Dr. F. B. Stephenson, U. S. N., under the title of "Color Blindness in Asiatics," giving the result of observations among the natives of Hawaii, Unalaska (Aleutian Islands), Japan, China, Annam, Siam, including the mixed nationalities from Borneo and India, which inhabit Singapore and other parts of the peninsula of Malacca. It appears that none of these races are free from defective color sense.

A CASE OF LONGEVITY.— According to the *Lyon Médicale* there has just died at Saratov, Russia, at the age of 125½ years, a veteran of the campaigns of Napoleon I. This remarkable personage, Lieutenant Nicolas Savin by name, was born in Paris in 1768, enlisted in a regiment of huzzars in 1798, and took part in the most important campaigns of the Consulate and the Empire. Having been taken prisoner by the Cossacks during the retreat from Beresina, Savin took up his residence, eighty-two years ago, at Saratov, where he was married, and lived during the last years with his eighty-two-year-old daughter. In 1887 the Czar Alexander III, made the old soldier a present of a thousand roubles.

DEATH FROM A GLOVE FIGHT.— A sparring accident is reported from London in which death followed an unusual chain of events. The victim of the accident was disabled in the second round of a glove contest by a blow on the jaw. At King's College Hospital he was found to have a fractured right jaw, for which he was treated. Seventeen days later, a second fracture was found at the angle of the left jaw, in connection with a foul abscess cavity. Deceased died of septic pneumonia. The gloves used in the fight were said to have weighed six and one quarter ounces. This appears to have been a contest for money with all the characteristics of a prize fight, save that light gloves were used. From the medical evidence both fractures were caused by the same blow, and the undetected second one was rendered septic by contact with the fangs of a decayed tooth. The spleen contained an infarct about the size of a hen's egg, which was breaking into an abscess.

PROFESSOR WIDERHOFER ON THE ANTITOXIN TREATMENT. — In summing up his paper on serum therapeutics at the St. Ann's Hospital in Vienna, a brief *résumé* of which was given in the JOURNAL for January 17th, Professor Widerhofer makes the following statement: "To my mind there does not remain the slightest doubt that Behring's *Heilserum* influences certain classes of diphtheria cases, and not the mildest forms either, so favorably that Behring's serum therapy deserves the name of a specific remedy against diphtheria, with which no other so far discovered deserves comparison." A consideration of his cases also fully confirms the statement of Behring that, "when postponed till after the third or fourth day of the disease, the effect of the antitoxin will be doubtful." This statement, however, does not mean that it is not worth while to try the serum treatment in these cases. *Apropos* of these statements and certain others which have been omitted from lack of space, the author says: "With regard to these points my mind is made up. What I have written I have seen, and what I have seen I believe. Therefore I fear no contradiction." The article, as a whole, is thorough, careful, and bears evidence of an honest and critical study of the facts. It will well repay perusal in the original.

## BOSTON AND NEW ENGLAND.

THE PRODUCTION OF ANTITOXIN FOR BOSTON.— Five horses were inoculated with diphtheria toxin at Gallop's Island on January 25th, as a first step toward the production of antitoxin by the Boston Board of Health.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, January 30, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 69, scarlet fever 54, measles 58, typhoid fever 10.

BOSTON CITY HOSPITAL CLUB.—The annual dinner of the City Hospital Club will be held at Young's Hotel on the evening of Wednesday, February 6th, at 6 o'clock. The annual meeting, postponed from June last, will precede the dinner, and will be held in the reception rooms provided for the Club, at 5.30 o'clock.

THE DANGERS OF A LINEMAN'S EXISTENCE.— The spectacle of a man hanging apparently lifeless from the top of an electric-light pole on Cambridge Street, Boston, on November 26th, must have reminded those who saw it of the danger to life, which at present attends the business of a lineman for electric light and power companies, unless constant caution is exercised. It is only a short time since a man was burned to

death at the top of a pole on Congress Street, while another who went to his assistance received the shock of the current, fell, and fatally fractured his skull.

NEW YORK.

APPOINTMENTS TO CITY BOARD OF HEALTH.— At a meeting of the Board of Health held January 24th, the following appointments were made: Assistant chemist, James H. Miller; assistant bacteriologists, Drs. Alexander Lambert, C. B. Fitzpatrick, A. M. Williams, and John S. Billings; assistant pathologist, Dr. George P. Biggs. These appointments were made from over thirty applicants, who were required to pass a civil-service examination, and the field of duty of the new officials will be in the Board of Health's antitoxin laboratory. The salary of each is $1,200 per annum.

MORTALITY.— During the week ending January 27th there were reported 933 deaths, of which 62 were attributed to influenza. In the week ending January 20th the number of deaths was 949, with 79 from influenza.

FIRE AT THE COLLEGE OF PHYSICIANS AND SURGEONS.— Fire was discovered on Sunday morning, January 27th, in the flooring between the second and third stories of the College of Physicians and Surgeons. The alarm was promptly given, the flooring was cut away, and the portion of the building in which the fire occurred was deluged with water. A number of pathological specimens in the museum were damaged, and the total loss from fire and water is estimated at $10,000. The cause of the fire is unknown.

## Miscellany.

### RESOLUTIONS ON THE DEATH OF DR. A. L. LOOMIS.

UNIVERSITY OF THE CITY OF NEW YORK.
January 25, 1895.

AT a meeting of the faculty held this day the following preamble and resolutions were adopted:

*Whereas*, In the wisdom of Almighty God it has been decreed to remove from among us our esteemed and honored associate, Dr. Alfred L. Loomis, who has been for thirty-three years identified with the progress and development of the Medical Department of the University of the City of New York, and to whose untiring energy and zeal that institution largely owes its present high position, we, the members of its faculty, hereby

*Resolve*, That in the death of Dr. Loomis we have met with an irreparable loss, in one whom we have ever valued as a friend, respected for his judgment and wise counsel, and admired for his strength and firmness of character, for his professional skill, his scientific learning and his literary attainments; that, while overcome with a sense of personal bereavement, we are not unmindful that the medical profession throughout the country has lost its foremost leader and the public a distinguished citizen.

And be it further

*Resolved*, That this resolution be spread upon the minutes of this meeting, and that a copy be suitably engrossed and sent to the family of Dr. Loomis in token of our profound sympathy and sorrow. CHAS. INSLEE PARDEE, *Dean*.

### OBITUARY. — A. L. LOOMIS, M.D., LL.D.

DR. A. L. LOOMIS died in New York of pneumonia, Wednesday, January 23d, after a very short illness. He was ill less than four days.

Dr. Loomis was born in Bennington, Vt., in 1831. He was graduated at Union College in 1851. Soon after graduating he went to New York and studied medicine under Dr. Willard Parker. In 1853 he took his medical degree at the College of Physicians and Surgeons. He served as an interne for two years at the charity hospitals on Ward's and Blackwell's Islands. He then began general practice in New York.

He was appointed visiting physician to Bellevue Hospital in 1859, and retained that position until his death. He was visiting physician to the Charity Hospital on Blackwell's Island from 1860 to 1875 and to Mount Sinai Hospital from 1870 to 1880.

He was lecturer on physical diagnosis in the College of Physicians and Surgeons from 1862 to 1865, and was then made adjunct professor of the theory and practice of medicine in the University of the City of New York. He was appointed professor of pathology and practice of medicine in the same institution in 1867, and held that chair until his death. The degree of LL.D. was given him by this University.

A friend of the University gave $100,000 to the medical department through Dr. Loomis in 1886 for the purpose of building and equipping the laboratory known as the Loomis Laboratory in East Twenty-sixth Street.

Dr. Loomis was a member of the principal local and national medical societies. He had been President of the Medical Society of the State of New York, of the New York Pathological Society, the New York Academy of Medicine, the New York County Medical Society, the American Climatological Society, the Association of American Physicians.

He was at the time of his death consulting physician to the Charity Hospital, Mount Sinai Hospital, the Hospital for the Ruptured and Crippled, the New York City Asylum for the Insane, and the Northern, Northwestern, and De Milt Dispensaries, and the Out-door Poor Department of Bellevue Hospital.

He wrote a number of books on medical subjects well-known and much used as text-books, among the principal of which were: "Lessons in Physical Diagnosis," ten editions between 1872–1893; "Diseases of the Respiratory Organs, Heart and Kidneys," 1875; "A Text-Book of Practical Medicine," 1884.

It is as a practitioner rather than as a writer or scientific student that his reputation will stand. He thoroughly understood the practice of medicine, and inspired much confidence in patients. He was greatly in demand as a consultant, and his income from his practice is said to have been very large. He was an excellent man of affairs, and this gift enabled him to be of much service as its President to the New York Academy of Medicine.

His place in the profession will not be easily filled.

## Correspondence.

### ETHICS OF THE METROPOLITAN SURGEON AND THE METROPOLITAN HOSPITAL.

HAVERHILL, MASS., January 23, 1895.

MR. EDITOR: — Have you room in your valuable journal for the following wail? And can you, out of the richness of your experience, suggest anything to help us?

It appears that the Massachusetts General Hospital, and, to a less extent, the other hospitals of Boston, are being conducted in a manner prejudicial to the interests of many members of the medical profession in this State.

We have, for instance, a patient who needs and desires a certain operation. Having "taken lessons" from the

distinguished surgeons of Boston, New York, Philadelphia; some of us also from the distinguished authorities in foreign lands; having had years of practice and a considerable record of cases operated upon with about the usual percentage of success which our teachers have had, we have no hesitancy in assuring our patient of our willingness to undertake the surgical care of his case. Now comes the question of fee. We offer our services for somewhat less than the metropolitan surgeon's charge, always with the mental protest that we really ought to have as much when we render the same service and are as successful. What then often happens? Our patient finds in some way that he or she can go to the Massachusetts General Hospital and get the treatment absolutely free, so far as the surgeon's fee is concerned. This fee we cannot compete with and we respectfully submit that we are grievously injured thereby.

This is bad enough; but, Mr. Editor, I was lately shown a letter received by a patient of this kind from one of the surgeons to the Massachusetts General Hospital wherein he confides to the patient, *my* patient, that in his opinion there is no medical man in my town sufficiently competent to treat her case surgically, and advising her to come to him. This is worse.

Will you kindly put yourself in my place for a moment, or will the surgeon referred to put himself in my place, and see if there is not just cause for complaint?

A fellow-practitioner, a fellow-member of the State Society, feels so desirous of securing my business that he is impelled to cast reflections upon my professional attainments in order to obtain it. I would like just here to say that this gentleman is not acquainted with me, or he would know better than to subscribe his name to such a statement, and that he appears to want a case much more than the honorable gentlemen of our noble profession should. This is our wail, Mr. Editor. Is there any help for us?

Is it necessary that the Massachusetts General Hospital should treat cases for nothing, when they are able to pay us a fair fee?

Must we continue to subsist upon the exquisite enjoyment of the fame which our metropolitan brothers get from patients who would give us some money and some reputation? And is it true charity, is it broadly ethical to pauperize these people and lower the standard of the medical profession outside of the city of Boston? S.

[Plain justice demands the publication of our correspondent's cry for light and help in a perplexity and distress which has troubled others besides himself. He asks questions which he has a right to ask, if asked, as his are, in a straight and manly fashion. They are, however, easier asked than answered. The golden rule is a simple, good and safe rule for all, whether of the profession or not. As to the line at which gratuitous hospital relief should be drawn, it is neither easy to fix it theoretically nor to enforce it practically. That many and grave abuses exist at present cannot be denied: abuses which work an injury to the public, and a wrong to many of the profession — to those holding hospital appointments as well as to those who do not. Some change will follow the increase of local hospitals; the right to charge fees at the metropolitan hospitals is a problem which has received much attention from trustees and from medical staffs, and much has been adduced both for and against the granting of such a right. Perhaps there are those who have information and opinions which would give some satisfaction to our correspondent in his perplexity. It is not an unknown thing that a practitioner in a small town or in the country should arrange with a *metropolitan* surgeon to take *all* his surgery — that which pays and that which does not. Is this ethical? There are other questions which might be asked; but we have already confessed it is easier to ask than to answer. — ED.]

## "FOR THIS RELIEF MUCH THANKS."

AVON RANCH, WYOMING, Jan. 2, 1895.

MR. EDITOR: Did Edward Courtenay, Earl of Devonshire, ever have his seminal vesicles stripped by a medico? Is his epitaph to be interpreted as an argument *pro* or *con* the practice?

> "What we gave, we have,
> What we spent, we had:
> What we left, we lost."[1]

Dr. Fuller Seed (an enthusiastic student and ardent admirer of Shakespeare), whom I met at round-up last week, quoted to me a passage in which he claims that the immortal William refers (prophetically) to this burning topic:

> "But man, proud man,
> Drest in a little brief authority,
> Most ignorant of what he's most assured,
> His glassy essence — like an angry ape,
> Plays such fantastic tricks, etc."

Yours in perplexity, MAVERICK.

[1] Geneological History of the family of Courtenay, p. 142.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 19, 1895

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Scarlet fever. |
|---|---|---|---|---|---|---|---|---|
| New York | 1,956,000 | 949 | 308 | 9.90 | 24.97 | .22 | 4.95 | 1.87 |
| Chicago | 1,660,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 412 | 173 | 11.55 | 18.10 | 2.10 | 6.72 | .42 |
| Brooklyn | 1,043,000 | 508 | 142 | 10.80 | 25.40 | .80 | 8.20 | — |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 191 | 64 | 9.36 | 22.88 | — | 5.72 | 2.60 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 110 | 31 | 4.55 | 7.28 | .91 | — | — |
| Cincinnati | 325,000 | 125 | 28 | 9.60 | 12.80 | 5.60 | 1.60 | — |
| Cleveland | 325,000 | 99 | 43 | 19.00 | 5.00 | 3.00 | 4.00 | 11.00 |
| Pittsburg | 272,000 | 94 | 36 | 18.02 | 19.08 | 6.48 | 5.30 | 4.24 |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 26 | 6 | 7.70 | 23.10 | 3.85 | — | — |
| Charleston | 65,185 | 30 | 7 | 33.33 | 33.33 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 109,410 | 33 | 7 | 15.15 | 15.15 | — | 3.03 | 3.03 |
| Fall River | 92,233 | — | — | — | — | — | — | — |
| Lowell | 90,613 | 29 | 9 | 13.80 | 13.80 | — | 3.45 | 3.45 |
| Cambridge | 79,607 | 20 | 7 | 30.00 | 20.00 | — | 15.00 | — |
| Lynn | 65,123 | 13 | — | — | 15.38 | — | — | — |
| Springfield | 50,284 | 18 | 8 | 16.66 | 22.22 | — | 11.11 | — |
| Lawrence | 49,900 | 16 | 5 | 6.25 | 25.00 | — | — | 6.25 |
| New Bedford | 47,741 | 19 | 7 | 5.26 | 26.30 | — | — | — |
| Holyoke | 43,948 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 9 | 4 | — | 11.11 | — | — | — |
| Salem | 33,158 | 11 | — | 9.09 | 18.18 | 9.09 | — | — |
| Haverhill | 32,925 | 6 | 0 | 16.66 | — | — | — | — |
| Malden | 30,209 | — | — | — | — | — | — | — |
| Chelsea | 29,806 | 14 | 2 | 14.28 | 14.28 | — | 7.14 | — |
| Fitchburg | 29,393 | 12 | 3 | 16.66 | — | — | 8.33 | — |
| Newton | 28,837 | 7 | 1 | — | 14.28 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,564 | 7 | 4 | 42.84 | — | — | 42.84 | — |
| Waltham | 22,038 | 0 | 0 | — | — | — | — | — |
| Quincy | 19,642 | — | — | — | — | — | — | — |
| Pittsfield | 18,802 | 4 | 0 | — | — | — | — | — |
| Everett | 16,585 | 4 | 2 | 25.00 | 25.00 | — | 25.00 | — |
| Northampton | 16,331 | 3 | 2 | — | — | — | — | — |
| Newburyport | 14,073 | 4 | 2 | 25.00 | 25.00 | — | — | — |
| Amesbury | 10,920 | 2 | 2 | — | — | — | — | — |

Deaths reported 2,940: under five years of age 831; principal infectious diseases (scarlet fever, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 314, acute lung diseases 949, consumption 526, diphtheria and croup 156, scarlet fever 47, typhoid fever 38, diarheal diseases 21, measles 16, cerebro-spinal meningitis and whooping-cough 13 each, erysipelas 7, malarial fever 2, small-pox 1.

From diarrheal diseases Philadelphia 7, New York 4, Brooklyn and Cincinnati 3 each, Cleveland, Charleston, Fitchburg and Newburyport 1 each. From measles New York 9, Philadelphia 3, Brooklyn 2, Washington and Cambridge 1 each. From cerebro-spinal meningitis Worcester 3, New York, Lowell and Somerville 2 each, Washington, Cambridge, New Bedford and Chelsea 1 each. From whooping-cough New York 8, Philadelphia, Brooklyn, Boston and Cambridge 1 each. From erysipelas Brooklyn 3, New York 2, Boston and Haverhill 1 each. From malarial fever Washington 2. From small-pox New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending January 12th, the death-rate was 20.1. Deaths reported 4,091: acute diseases of the respiratory organs (London) 389, measles 109, whooping-cough 68, diphtheria 66, diarrhea 45, fever 39, scarlet fever 33, small-pox (Liverpool) 3.

The death-rates ranged from 14.6 in Derby to 28.9 in Liverpool; Birmingham 18.4, Bradford 16.8, Croydon 16.8, Hull 18.5, Leeds 22.3, Leicester 16.9, London 19.3, Manchester 23.9, Newcastle-on-Tyne 22.7, Nottingham 20.2, Plymouth 18.7, Portsmouth 21.5, Sheffield 18.6, Swansea 18.3, WestHam 20.3.

## METEOROLOGICAL RECORD.

For the week ending January 19th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | Direction of wind. | | Velocity of wind. | | Weather. | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..13 | 29.63 | 43 | 52 | 34 | 100 | 86 | 93 | N.E. | S.W. | 21 | 19 | O. | N. | .02 |
| M..14 | 30.01 | 26 | 37 | 15 | 68 | 58 | 63 | S.W. | S.W. | 15 | 10 | C. | O. | |
| T..15 | 30.13 | 28 | 35 | 20 | 70 | 56 | 63 | W. | S.W. | 9 | 9 | O. | O. | |
| W..16 | 29.96 | 36 | 39 | 32 | 62 | 95 | 78 | S.W. | N. | 5 | 7 | N. | N. | .49 |
| T..17 | 29.98 | 29 | 36 | 22 | 84 | 65 | 73 | W. | W. | 14 | 11 | C. | C. | |
| F..18 | 30.05 | 24 | 30 | 17 | 68 | 60 | 64 | W. | W. | 9 | 10 | C. | O. | |
| S...19 | 30.04 | 22 | 27 | 16 | 88 | 57 | 72 | W. | W. | 11 | 9 | C. | C. | .14 |
| ☞ | | | | | | | | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 19, 1895, TO JANUARY 25, 1895.

Leave of absence for twenty-one days, to take effect upon being relieved from duty at Fort Warren, Massachusetts, is granted CAPTAIN EDWARD R. MORRIS, assistant surgeon.

FIRST-LIEUT. ASHTON B. HEYL, assistant surgeon, is relieved from duty at Columbus Barracks, Ohio, and ordered to Fort Thomas, Kentucky, for duty.

MAJOR JOHN V. LAUDERDALE, surgeon, will be relieved from duty in the Department of the East, to take effect upon the expiration of his present leave of absence and will then report for duty at Fort Omaha, Nebraska.

LIEUT.-COL. HENRY R. TILTON, deputy surgeon-general, is relieved from duty at Fort Omaha, Nebraska, and will report in person to the commanding general, Department of Dakota, for duty as medical director of that Department, relieving COLONEL CHARLES C. BYRNE, assistant surgeon-general.

COLONEL BYRNE, on being thus relieved, will report to the commanding general, Department of the East, for duty as medical director of that Department.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 26, 1895.

O. D. NORTON, passed assistant surgeon, ordered to Naval Laboratory and Department of Instruction, Brooklyn, N. Y.

T. A. BERRYHILL, passed assistant surgeon, detached from Naval Laboratory and Department of Instruction and ordered to the Naval Hospital, Brooklyn, N. Y.

J. S. HOPE, assistant surgeon, ordered to examination preliminary to promotion, March 4, 1895.

## HARVARD MEDICAL SCHOOL.

### EVENING LECTURES.

The next lecture will be given on Thursday evening, February 7th, at 8 o'clock, by Dr. F. H. Davenport. Subject, "The Disorders of Menstruation." Physicians are cordially invited.

### SPECIAL NOTICE.

Dr. Ernst having been unable to give his lecture on "Tuberculosis" last week, will give it on Thursday evening, March 21st, at the end of the already announced course of lectures.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, February 4th, at 8 o'clock.

Dr. F. M. Briggs will exhibit a new Self-Retaining Drainage Canula.

Dr. F. S. Watson will read on "Castration for Hypertrophied Prostate." Discussion opened by Dr. A. T. Cabot.

Dr. George H. Monks on "The Muscles of Expression." Discussion opened by Dr. Thomas Dwight.

JAMES G. MUMFORD, M.D., *Secretary*.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section of the Suffolk District Medical Society will hold its regular monthly meeting at 19 Boylston Place, on Wednesday evening, February 6, 1895, at 8 o'clock.

The subject of discussion will be "The Treatment of Trigeminal Neuralgia." Dr. Louis M. Tiffany, of Baltimore, Md., will open the discussion by a paper entitled "The Treatment of Trigeminal Neuralgia by Intracranial Neurectomy," followed by Dr. N. P. Dandridge, of Cincinnati, O., who will read a paper entitled "Rose's Operation for the Removal of the Gasserian Ganglion."

C. L. SCUDDER, M.D., *Secretary*, 1 Marlboro Street.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—A stated meeting of the Society will be held on Wednesday, February 6, 1895, at 12.30 P. M., in the hall at 19 Bolyston Place, Boston.

The following papers will be read: "A Case of Criminal Abortion Presenting Some Unusual Features," Dr. W. S. Birge, of Provincetown.

"The Post-Mortem Signs of Drowning," by Dr. G. DeN. Hough, of New Bedford.

"The Murder of James Farrer," by Dr. J. A. Mead, of Watertown.

F. W. DRAPER, M.D., *Recording Secretary*.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—The annual meeting of the Society will be held at the City Hall, Albany, commencing at 9.15 A. M., February 5, 1895, and continuing in session until 1 P. M., February 7th.

The Committee on Credentials will be at the Kenmore Hotel, Monday evening, February 4th, and members and delegates, so far as possible, are requested to register there.

WENDELL C. PHILLIPS, *Chairman Business Committee*, 350 Madison Avenue, New York City.

NEW YORK STATE MEDICAL ASSOCIATION, FIFTH DISTRICT BRANCH.—The eleventh annual meeting will be held in Brooklyn on Tuesday, May 28, 1895. All Fellows desiring to read papers will please notify the Secretary.

AUSTIN FLINT, M.D., *President*.
E. H. SQUIBB, M.D., *Secretary*, P. O. box 760, Brooklyn, N. Y.

## RECENT DEATH.

CYRUS MENTOR FISK, M.D., M.M.S.S., formerly of Lowell, Mass., died at Bradford, N. H., January 21, 1895.

## BOOKS AND PAMPHLETS RECEIVED.

Mysophobia. By S. V. Clevenger, M.D. Reprint. 1894.

A Location Reaction Apparatus. By Prof. G. W. Fitz. Reprint. 1894.

An Undescribed Heart-Murmur. By J. N. Hall, M.D. Reprint. 1894.

On the Relation of Urea to Epilepsy. By J. Nelson Teeter, M.D. Reprint. 1895.

The Home Treatment of Hay Fever. By A. L. Hall, M.D., Fair Haven, N. Y. Reprint. 1895.

Defective Speech and Deafness. By Lillie Eginton Warren. New York: Edgar S. Werner. 1895.

Charity Organization and Medicine. By George M. Gould, M.D., of Philadelphia, Reprint. 1894.

The Nature and Treatment of Leprosy. By R. H. L. Bibb, M.D., Saltillo, Mexico. Reprint. 1894.

On the Relations of Some Occupations to Eyesight. By Simeon Snell, F.R.C.S., Ed. Reprint. 1894.

Operative Treatment of Myofibroma Uteri. By N. Senn, M.D., Ph.D., LL.D., Chicago. Reprint. 1894.

Intestinal Anastomosis, with the Report of a Case. By Frederick Holme Wiggin, M.D. Reprint. 1894.

Caries of the Spine followed by Compression of the Cord. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1894.

A Remarkable Case of Suppurative Otitis with Hemiplegia. By Arthur H. Coe, M.D., Spokane, Wash. Reprint. 1894.

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# Address.

## ADDRESS AT DEDICATORY EXERCISES OF THE FREE HOSPITAL FOR WOMEN.

BOSTON, JANUARY 1, 1895.

BY W. H. BAKER, M.D.

IT seems appropriate on this occasion, which marks an era in our hospital life, to review the work of the past nineteen years, with a view to establish in our minds what has been accomplished by our efforts, as well as to serve as a guide to direct us in the larger field of work upon which we have now entered. We began in the small house No. 16 East Springfield Street, with a capacity for the treatment of five patients. We were able within two years to increase the number of patients to fifteen, because the financial aid of our early friends supplied us with the necessary means.

But in 1877 we had outgrown these accommodations and moved to the larger house No. 60 East Springfield Street, where we very soon increased our number of resident patients to twenty. Two years later the Out-Patient Department was established, and we became again crowded for room, when the adjoining house was added to the hospital. The growth of the work during these years is well shown by the fact that during the first two or three of them, one surgeon was able to attend to all the active work of the hospital. Of late, fourteen surgeons and physicians have been in constant attendance throughout the hospital year.

The adaptation of the principles of asepsis to gynecological surgery wrought a great change in the work of our hospital. It became more essentially a surgical institution; and under the influence of this method of treatment, we find that the number of operations quadrupled. The safety in the performance of this work offered the patient a more speedy relief with less risk than by the older methods. This fact is conclusively shown, when we consider that our capacity of twenty beds has not changed in the past fifteen years, yet the number of patients admitted and treated during that time doubled, and this without the death-rate increasing. The whole number of patients treated in the wards of our institution since its organization has been 2,309, while in the out-patient department in fifteen years there has been 46,655.

Although these figures would seem to justly indicate a cause for encouragement in our work for the relief of suffering, yet it is really but a small part of the work accomplished. I refer to the extension of knowledge in the special class of disease treated which has resulted from it. Take, for instance, the young men who have served us in the capacity of house-surgeons. Of these, two are acknowledged leaders in the department of diseases of women in New York City, having services in the Woman's Hospital, the Cancer Hospital and the Maternity Hospital. One is at the head of a hospital for women in Denver, Colo. One organized and presides over the department of gynecology in the hospital at Grand Rapids, Mich. Another established and is doing an excellent work in a hospital for women in Detroit, Mich. Still another has lately started a hospital for the treatment of women in Providence, and is attached to the staff of the Rhode Island Hospital. Three others have services in the department for women in general hospitals in this city. Thus, when we think of the hundreds of women who are being relieved at their hands and add to these the thousands that are relieved by the great number of physicians who have been instructed in this department in this institution, we can begin to realize the amount of good accomplished by the hospital as an educational organization.

The hospital, born in 1875, has already passed through the trying ordeal of youthful existence, and will obtain its majority this coming year. May we not expect that in the next decade the full strength of its manhood will be established, and the success which has crowned our labors in the past not only be continued but increased in a manifold degree? We cannot, however, imagine our work ever passing into a worthless dotage, for the ever-present call to relieve poor suffering women is constantly before us. Our best and most zealous effort will ever be demanded to meet this necessity.

As we look about us to-day and see the faces of those who have grown familiar in the unity of our work, we miss from our number some that we had hoped would be with us on this occasion. We mourn the wise counsel of Dr. Storer and the skilled touch of Dr. Strong in the active work of the hospital. But even this sorrow is turned to joy as we recall the good work for which they labored, for which we still labor, and for which others will continue to labor who succeed us. For we are united with them in carrying on this great work of relieving the suffering of the sick, of extending hope and courage to the poor, and giving of our abundance to the needy, and so fulfilling this great and noble purpose of life.

# Original Articles.

## ON SOME OF THE CLINICAL FEATURES OF PRIMARY TUBERCULOSIS OF THE GENITO-URINARY ORGANS.[1]

BY FRANCIS S. WATSON, M.D., BOSTON.

THIS communication does not aim at treating the subject at all completely, but is intended merely to call attention to some of the more suggestive symptoms of this disease as it occurs in the urinary organs, and especially as it affects the bladder and kidneys, and is prompted by the belief that the disease is frequently overlooked. I have recently asked six or eight general practitioners of fifteen or twenty years' standing, with opportunities for wide observation, how often they had seen cases of primary tuberculosis of the urinary organs. The answers varied from "four or five times," to "practically never." In some cases I have been asked to see, in consultation, patients with "obstinate cystitis," which have proved to be examples of tuberculosis, generally renal, which had not been suspected.

Since reporting a case of tuberculosis of the kidneys and bladder, and showing the specimens obtained at the autopsy, at a meeting of this Society six years ago, I have had twenty others, in which the nature of the disease was demonstrated by autopsies, or by the discovery during life of the characteristic bacilli, and four or five more which although such proof was

[1] Read before the Suffolk District Medical Society, April 26, 1894.

lacking, I am convinced were also examples of tuberculosis. In all but two of these cases the disease, so far as could be determined, originated in some part of the genito-urinary tract, as follows: in seven cases the disease originated in the epididymis; in four in the prostate or seminal vesicles; in three in the kidney; in the remainder the origin was undetermined. In two cases the autopsies showed apparently that the disease was confined to the genito-urinary tract. In two it was doubtful whether the disease had not originated in other organs, with this exception the evidence was wholly in favor of its being primary in the genito-urinary organs. One case of tuberculous epididymitis, and one of prostatitis started in gonorrheal inflammation.

Fifteen of the cases were males; six were females. The oldest patient was a man fifty years of age at the time of his death, in whom symptoms referable to the prostate and bladder, were first noticed two years' before. The youngest patient was a girl six years of age, in whom the disease was primary in the kidney, probably the first symptoms (irritable bladder and pyuria) being noted two years ago; this patient has been subjected to a right-sided nephrotomy, and is still alive.

The average duration of life after the appearance of the first symptoms which indicated that the kidneys or bladder were involved, was a little more than three years. There are two patients, one a man and one a woman, in whom the disease seems to have been arrested, one having been almost free from symptoms for two years, and the other for nearly four years. The urine of both, however, still contains a few blood-globules and from time to time a small quantity of pus. Tubercle bacilli were found in the urine of both patients; no examinations have been made for them recently. Both patients appear to be in excellent health, and are free from all subjective symptoms.

It is not probable that this series of cases represents more than a small proportion of those occurring in this neighborhood.

Perhaps the reason, that more than any other leads genito-urinary tuberculosis to be overlooked, is the readiness to rest content with a diagnosis of "idiopathic cystitis" in cases in which pyuria and irritable bladder are the conspicuous symptoms, and in which a few microscopic examinations of the urinary sediment fail to show casts, renal epithelium, or crystals, the latter fact being often assumed, under these circumstances, to free the kidneys from suspicion of being involved. "Idiopathic cystitis" in the sense of a spontaneously occurring inflammation of the mucous membrane of the bladder — an inflammation without a well-defined cause, that is to say — I do not believe exists. If inquiry is pushed far enough, some conditions of which such as the following are the most familiar examples, will be found to have originated the trouble: gonorrhœa; stone; lithiasis; stricture; prostatic hyperthrophy, and its consequences; the use of instruments; acute overdistention of the bladder, such as occurs sometimes in childbirth, or by voluntary effort, as with the insane; profound narcosis from opium or alcohol; the injestion of certain irritating drugs, for example, cantharides; in connection with certain diseases of the spinal cord, etc.

If, in the absence of these or other well-defined causes, a patient has symptoms of cystitis, it is strongly suggestive of tuberculous disease in the genito-urinary tract, probably located in the kidneys, the prostate, the seminal vesicles, or possibly in the bladder itself; but this is thought to be rarely the starting-point of the disease.

It should be borne in mind that bladder irritability is sometimes the most conspicuous sign of certain conditions in the kidney, the bladder itself being at the time free from disease. This is notably true of calculous pyelitis, of malignant and of tuberculous disease of the kidney. It is also seen in connection with simple, and more markedly with tuberculous, inflammation of the seminal vesicles and the prostate.

With regard to the method of entrance of tubercle bacilli and their lodgement in the genito-urinary tract, I will not speak, but merely note that the disease may take any of its organs as a starting-point, and that in the majority of cases in the male it begins in the epididymis, testis or prostate, and ascends more or less rapidly to the other organs. It rarely begins in the bladder; more frequently than in the latter in the kidneys, and descends.

The disease may remain localized in the epididymis or testis for a long time (several years), but it is more usual for the extension to take place more rapidly; and in some cases its progress is very rapid.

To return to symptoms. The presence of a hard lump in one epididymis, especially if the patient has never had gonorrhea or received an injury, is suggestive of its being of tuberculous nature,[2] this suspicion is heightened if the urinary sediment contains, pretty constantly, blood-globules, and is further increased if there is irritability of the bladder.

An outline of the following case will serve as an example. Four years ago a young man consulted me for a slightly increased frequency of urination and a "teasing" desire to urinate often. This had begun two months before, and had very gradually increased. The physical examination showed nothing except a hard lump in the right epididymis — this the patient had never noticed. The urine contained a very faint trace of albumin constantly, and there were always a few blood-globules in the sediment. I think the patient's statement that he had never had any venereal disease or received any injury to the parts, was true. He subsequently developed tuberculosis of the prostate, bladder and kidneys, and died.

Bryson has called attention to the existence of small, shot-like bodies to be felt in the hilus of the testis as the first evidence of tuberculous deposit in these organs. They pass unnoticed by the patient, and often by the physician.

Induration of the seminal vesicles and an uneven, furrowed prostate, or small areas of softening and indistinct fluctuation in the prostate, can often be felt by rectal examination when the disease occupies these organs. Cabot calls attention to the presence of hard, pea-like bodies to be felt in the prostate by rectal examination, in some cases as being suggestive of tuberculosis in that organ.

These features are dwelt on in order to emphasize the importance of systematic examination of the epididymes, testes, seminal vesicles and prostate in every case.

Blood in the urine is often the first sign of the disease. It is generally seen in the form of small

[2] As has been noted by Guyon and others, tuberculous disease seems not infrequently to grow out of an attack of gonorrhea. An induration in the epididymis is, however, less significant after a clap, than where there has been none.

clots. It is most noticeable in the early stages of the disease, as a rule. It is rarely profuse, as it generally is with tumors of the bladder and in some cases of malignant disease of the kidney. It is not increased by exercise, as it is apt to be in cases of stone, nor by instrumental examination of the bladder, as it often is in cases of bladder tumors. I have never seen blood-globules absent from the urine on microscopic examination at any time. In one of my cases blood never appeared except microscopically. Exceptionally there are profuse hemorrhages; this I saw in one case. Tuffier has reported a case in which there were attacks closely resembling paroxysmal hemoglobinuria.

Pus in the urine is more rarely the first symptom, but it is often coincident with blood when the latter is first noticed. When it arises from the bladder, it is continuously present; when from the kidney, it is often variable in quantity; and if only one kidney be involved and its ureter becomes plugged, pus may disappear for a time, the freeing of the ureter being followed by its reappearance in the urine in large quantity. Occasionally small masses of caseous matter are seen in the urine; and it is to the lodgement of these or of a blood-clot in the ureter that its temporary plugging is due. As a rule, these plugs are dissolved or pressed onward into the bladder too soon to allow of the formation of a very marked pyonephrosis, but sometimes they are too large and firm to be so readily pushed down, and an extensive pyonephrosis is produced, advancing sometimes to the point of threatening rupture of the pelvis of the kidney. Such a threatening occurred in one of my cases on three separate occasions, producing the following phenomena: the sudden disappearance of pus from the urine, a diminution in the quantity of urine, pain in the left side, the appearance of a large tumor in the left loin, extending forward to the abdomen, and evidently connected with the kidney, and a marked rise of temperature. Twenty-four hours later there was a sudden reappearence of pus in great quantity in the urine, a disappearance of the tumor and of the pain in the side, and a dropping of the temperature. In the first flow of urine, following the reappearance of pus, there were numerous cheesy masses, of various shapes and sizes, one or two being quite large enough to have blocked the ureter. Occasionally such stoppage of the ureters will produce attacks of renal colic simulating those produced by renal calculus.

There are two points in connection with the pyuria of renal and bladder tuberculosis that I do not remember to have seen noted by writers on the subject, which I have observed in several of my cases, namely, that the pus has a peculiar dirty-gray color, and that these tuberculous urines even when loaded with pus, do not, in many cases, have the exceedingly foul smell that is often noticed in the urines of some cases of chronic cystitis in connection with prostatic hypertrophy, and more especially of malignant disease of the kidney and bladder.

Unlike blood the pus generally increases in quantity as the disease progresses, although in some instances it undergoes marked temporary diminution.

Painful and frequent urination are also early symptoms. Very often the first thing that attracts the patient's notice is a slight increase in frequency of, and a teasing desire for, urination; this may precede the appearance of pus or blood in the urine by several weeks or months, and be the only symptom. There is nothing especially characteristic with regard to the pain in the earlier stages; later, however, the occurrence of very marked remissions, when they take place, as they do in some cases without any apparent cause, is a very suggestive feature. These remissions of pain are usually associated with a diminution of pus in the urine. Unlike the pain in cases of stone, that of tuberculosis, when the bladder is involved, is worst when the bladder is full; and it is not so markedly increased by exercise as it is in stone.

Bladder irritability is often very marked when the disease is still confined to the kidney; and it is this, as I have said, which sometimes causes the mistakes in diagnosis, through considering the trouble to be an ordinary cystitis.

Before leaving the symptom of pain, let me say that as the disease advances it becomes almost intolerable; it is worse than that of stone because almost incessant. I think I have never seen greater suffering, except in cases of cancer of the bladder or prostate; and yet, even up to the last, there continue to be unexcepted periods of relief in some cases.

Two strikingly characteristic features of renal and bladder tuberculosis are (1) the extraordinary remissions in the severity of many or all the symptoms, and (2) the entire failure of the ordinary medicinal remedies to relieve the bladder symptoms, and the positive aggravation of the latter by local treatment, such as bladder washes, deep urethral injections, or the passage of instruments. The remissions are very deceptive, and often raise false hopes.

There is one other thing that I have observed in this series of cases, and that is, the comparatively rare occurrence of chills and profuse sweats that are so frequently seen in connection with cases of suppurative nephritis, of the so-called surgical kidney. In concluding these notes on some of the especially suggestive symptoms of this disease, let me repeat what I said at first, that the appearance in the manner described of bladder irritability, of blood in the urine, and of pus, is, in the absence of any of the special causes mentioned, particularly if occurring in a male under fifty years of age, highly suggestive of renal or bladder tuberculosis. To establish the diagnosis, there remain the discovery of the tubercle bacilli, and the cystoscopic examination of the bladder.

### SURGICAL TREATMENT.

Of this I shall only give a very brief outline. The outlook is not hopeful for surgical interference, but it can often avert immediate danger, and relieve pain sometimes. If I should judge from my own experience, I should say that local treatment of the bladder when it is the seat of the tuberculous process is for the most part unavailing. I have had no success with applications to the bladder, and have tried thoroughly emulsions of iodoform, solutions of nitrate of silver, boracic acid, permanganate of potash, and so on through the whole list. Dilatation of the female urethra sometimes gives short periods of relief, but often fails to do so. Deep urethral injections are, so far as I have seen, injurious. Long-continued drainage of the bladder through the perineum has failed to relieve, in my hands. In two cases in which suprapubic cystotomy was done for the relief of most distressing vesical tenesmus, the operations were partially successful, especially when supplemented by applications. Iodoform applications after curetting

the ulcerated surfaces of the mucous membrane of the bladder, afforded very considerable relief in both cases. Guyon has reported two cases of what he considered to be primary tuberculosis of the bladder, which he treated by suprapubic cystotomy, and by burning the ulcerated surfaces with the actual cautery; one of these he reports as cured, the bacilli having disappeared from the urine, and the patient being freed from all symptoms one year later. The second patient did well, but the bacilli did not disappear.

With regard to the prospect of success attending operations on the kidney, the statistics published by Newman and others are of interest. Facklam[3] reports as follows:

He collected 108 cases of tuberculosis of the kidney, in 20 of which nephrotomy and in the remainder nephrectomy was performed.

Two-thirds of the patients were women. The percentage of cases with reference to age is shown below:

| | |
|---|---|
| 1 to 10 years | 7 per cent. |
| 11 to 20 years | 9.4 " |
| 21 to 30 years | 37.6 " |
| 31 to 40 years | 37.6 " |
| 41 to 50 years | 7 " |
| Over 50 years | 1.2 " |

In 38 cases out of 72 the diagnosis was correctly made before operation.

The following conclusions are drawn from a study of the operations and their results:

The mortality attending the operations in the 20 nephrotomies was about 60 per cent.

Of the eight patients who recovered, four only are claimed as cures; and of these but one resulted in a well established cure.

Of the patients who died within a short time after the operation, five had had the disease for several years previously; two of them developed acute miliary tuberculosis immediately after the operation; one died of uremia (the other kidney was seriously involved by the disease); one died of acute septicemia; and in the remainder the disease was far advanced, or had involved other organs beside the kidney.

From this evidence the author concludes: "Thus far the results of nephrotomies in cases of renal tuberculosis are not favorable."

In 16 additional cases in which nephrotomy had been performed without improving the patient's condition, nephrectomy was done — resulting, in 10 of them, in very marked improvement.

Nephrectomy was performed in 88 cases, with a mortality of 28 per cent. In 13, the operation was performed through an abdominal incision, with four deaths (about 30 per cent. mortality). In 75, the operation was extraperitoneal, 21 deaths resulting (or about 28 per cent. mortality); but of these latter 16 can be said not to have died as a direct result of the operation, whereas the four deaths resulting from the abdominal operation were all due to shock, and followed immediately upon the operation.

Of the cases which recovered from the operation 62, or 70 per cent., are reported as wholly cured or greatly relieved, but of these only 14 had been under observation for over one year after the operation. Of these 14 cases, five are entirely cured, so far as can be seen; the rest are not wholly free from evidences of the disease.

As Vigneron[4] has pointed out, the success of nephrotomy in these cases depends on the thoroughness with which the pus cavities are opened into each other and cleansed, and freely drained. It should be remembered that hemorrhage is very profuse in resections or curetting of the kidney substance, but it is usually readily controlled by firm packing. A summary of the article of Vigneron above referred to, relative to these operations on the kidney in cases of tuberculosis is here submitted.

Dr. Vigneron points out that surgical interference in cases of renal tuberculosis dates back only twenty-five years, and that the subject has been exhaustively treated only since 1890. He refers to the articles of Tuffier, Facklam and Heydenreich as the most recent and important contributions to the subject; and he compares his own conclusions — arrived at independently — with those of the other surgeons just named, as follows:

NEPHROTOMY IN RENAL TUBERCULOSIS.

Facklam: 36 cases, general mortality 33.33%, operative mortality, 13.88%.

Vigneron: 54 cases, general mortality 38.18%, operative mortality, 12.72%.

Vigneron advises against early surgical interference in renal tuberculosis, following in this respect the teachings of Professor Guyon.

His conclusions in regard to nephrotomy are, that the operation affords relief in many cases, and that radical cure may follow its performance in some rare instances. In this connection, he cites the case of a child upon whom Guyon performed a nephrotomy six months before, and whose general and local conditions showed such remarkable improvement that a permanent cure is looked for.

He considers nephrotomy indicated when the patient is suffering, is losing ground, and when both kidneys are affected.

The success of the operation depends upon the manner of its performance. It is essential to open freely *all* pus cavities, and to remove, so far as possible, all cheesy masses; to drain freely; and to suture the edges of the renal wound to the lumbar incision, so as to allow the interior of the kidney to be easily cleansed and dressed. If these steps are not taken, the operation is useless.

The following figures are given in regard to nephrectomies:

(1) ABDOMINAL.

| | | | |
|---|---|---|---|
| Tuffier | 11 cases, | mortality, | 26.3% |
| Facklam | 13 " | " | 30.0% |
| Vigneron | 19 " | " | 26.84% |

(2) LUMBAR.

| | | | |
|---|---|---|---|
| Tuffier | 45 cases, | mortality, | 28.2% |
| Facklam | 75 " | " | 28% |
| Vigneron (primary) | 65 " | " | 40% |
| Vigneron (secondary) | 20 " | " | 35% |

Vigneron accounts for the higher rate of mortality in the series of cases which he has collected by the fact that it includes a larger number of cases operated on in the earlier days of nephrectomy, when the technique of the operation was less perfect.

The author urges secondary nephrectomy rather than primary, and considers that if it is so done the mortality is much less than with primary nephrectomy. The best time to choose is a few weeks after a nephrotomy, as soon as the general condition of the patient has improved.

Nephrectomy should be considered only in those cases in which the disease is unilateral. Vigneron considers that renal palpation and the endoscope will,

[3] Arch. für klin. Chir., 1893, B. 45, H. iv.

[4] Annales des Maladies des Organes Genito-Urinaires, September, 1894.

in most cases, make a decision in this respect perfectly possible.

Nephrectomy should not, of course, be undertaken unless there is satisfactory evidence that the other kidney is not involved, which is not always an easy matter to determine. It is impossible to lay down any general rule that shall be applicable to all cases, that is to say, it cannot be asserted that nephrectomy should always be done in preference to nephrotomy, or *vice versa*. The rational plan would seem to be to make an exploratory nephrotomy, and to act according to the conditions found; for example, if the disease should be confined to a well-defined area of the kidney, not too extensive, a resection of that portion of the organ may be the best thing to be done, as recommended and practised by Czerny, Kummel, Bryson, and others. The patient's strength and the usual considerations that govern the surgeon in deciding whether it is safe to proceed to a grave operation after an exploratory one, will determine his course. It is thought by many surgeons that it is much safer to do a secondary nephrectomy in all cases; and the records of that operation so performed seem to point to that conclusion.

## THE HISTOGENESIS OF THE PLASMODIUM MALARIÆ.[1]

BY F. A. ROGERS, M.D., CHATHAM, MASS.

The only break in the chain of evidence which would establish beyond a doubt the fact that malaria is caused by a specific micro-organism is the one criterion that the parasite has not as yet been successfully cultivated upon artificial media. But the observations of many trustworthy investigators conclusively prove that such is the case, although we cannot as yet successfully watch the wonderful changes which occur in the plasmodium when in its natural element, the blood, in the test-tube.

The parasites belong to the sporozoa, and have the definite name of plasmodia malariæ. They are always found in the blood of persons who are suffering from malaria and are not found in the blood in other conditions.

Malaria is perhaps the best example we have of a purely miasmatic affection, never appearing as an infectious disease, and cannot be communicated directly from one person to another except by inoculating a healthy individual with the blood of one sick with the disease. This fact, which has been successfully demonstrated by experimenters, proves that the infectious matter exists only in the blood.

The forms which have been discovered in this disease are peculiar to it alone, yet one point remains undecided, namely, whether there is only one kind of a micro-organism or whether several kinds give rise to the varying conditions known as tertian or quartan fever.

Laveran maintains that a single parasite causes malaria, and that the various forms met with have no connection with the various clinical phenomena found in this disease.

Golgi, on the other hand, is of the opinion that the diverse forms of malaria are caused by several different morphologically distinct species of plasmodium. He further maintains that upon the cycle of development of each parasite the various clinical manifestations of malaria depend.

Meade Bolton, in a short article upon plasmodia malariæ, has carefully compared the different views of these observers, and, according to him, Golgi regards the ameba or plasmodium of Marchiafava and Celli as the fundamental form of the organism. It is described as a more or less round mass of protoplasm, an irregularly formed structure, containing no pigment granules, and endowed with ameboid movement. He further maintains that the parasite occupies a position inside of the red blood-corpuscles, where it has been found by Councilman in sixteen cases, deriving its nutrition from the hemoglobin, and that it goes through many or all of its phases of development, even to reproduction, therein.

On the other hand, Laveran holds that the plasmodia are not found inside of the blood-corpuscles at all, that at most they are simply attached to them, whereas many forms are found floating around free in the blood plasma. He further maintains that the fully developed organism is represented by moving filaments which are developed within small cystic bodies; afterward becoming detached from these they move about freely in the blood.

To Laveran, in 1880, belongs the credit of first discovering the parasitic nature of malaria, but a different interpretation of the phenomena observed has given rise to the different views as outlined above.

The ease and certainty with which an examination can be made when one possesses a microscope is indeed novel. No elaborate apparatus or expense is entailed except a slip of glass, a thin cover-glass and a sterilized needle which complete the outfit. Different observers select different parts of the body from which to obtain a drop of blood for examination. Sometimes it may be the lobe of the ear, finger-tip, wrist, or even an organ like the spleen. With a view of obtaining blood as free from pain as possible I know of no method better than the following: after cleansing the left forefinger apply a handkerchief like a tourniquet tightly around the finger between the second and third joints, then directing the patient to strongly flex the finger it becomes so filled with blood that a very light prick with a sharp needle made at the junction of the palmar and dorsal surfaces of the finger will without pain give a plentiful supply of blood.

Two methods of procedure are now before us: the immediate, or examination of the fresh blood; and the mediate, or examination of a properly prepared, stained, and mounted cover-glass of blood. Both methods are very easily practised, and both should be tried in a given case. For the immediate examination, after wiping away the first drop of blood which appears, simply touch the centre of a clean cover-glass to the drop of blood and apply it to the glass slip, when it is ready for examination. If an appliance for warming the stage of the microscope be at hand the ameboid movements will be more apparent.

For the other method a different procedure, though one nearly as simple, is needed. It is necessary to have a thin, even layer of blood spread upon the cover-glass and properly fixed in this condition. Nothing in my hands has worked so well for a blood-spreader as a square cover-glass mounted in the handle. The split end of a match answers well for a handle. The free edge of this cover-glass is dipped in the blood and then drawn across the face of a clean cover-glass when,

[1] Read before the Barnstable District Medical Society, November 20, 1894.

if properly done, a thin, even layer of blood, scarcely more than the thickness of one corpuscle, will be left upon the cover-glass. This is now fixed by being placed in equal parts of absolute alcohol and sulphuric ether for twenty to thirty minutes, after which it is to be stained in an aqueous solution of methyl-blue or in Biondi's triple stain; then, after washing in water and drying, it is to be mounted in Canada balsam, when it is ready for observation. If no special or prolonged study of a case is needed, then the first method is to be commended, and especially if simply a diagnosis is all that is required. A satisfactory examination of the plasmodia can only be made by employing a high-power objective; a one-twelfth or one-fifteenth-inch objective will not be too ample to show the various forms well.

An excellent summary of the facts established in regard to the etiology of malaria is given by Marchiafava as follows:

(1) Malaria is a parasitic disease caused by a hematozoon belonging to the protozoa and not by a bacillus.

(2) The malarial hematozoa are amebæ which develop inside the red blood-corpuscles, changing the hemoglobin into melanin.

(3) The amebæ complete their cycle of life in the red blood-corpuscles. Beginning as unpigmented moving bodies they develop, becoming pigmented, and multiply by segmentation into spores which becoming amebæ enter again into the red blood-corpuscles, thus completing the cycle.

(4) This cycle corresponds to the periodicity of the attacks.

(5) During the course of their development a poison is produced which effects a change in the blood-corpuscles as well as the organs.

(6) Each type of fever has its own peculiar variety or species of ameboe — and these differences are apparent upon close observation.

Up to the present day these facts have become quite well established; yet, could we furnish a medium outside the body upon which the plasmodium would successfully grow and reproduce the cycles as observed in the body, and use the parasites for experiments of transmission, a clear insight into the pathology and epidemiology of malaria might be obtained.

On the protozoa theory intermittence is readily understood. The apyrexial period is equivalent to that of incubation; the onset of fever is the period of accumulation, while the subsidence of fever corresponds to the period of elimination of the poison. The amount of poison generated at one time is proportionate to the severity of the fever.

As all varieties of malarial disease may prevail at the same time and in the same place, as the sequelæ of all the manifestations are identical in character, and as likewise the acute manifestations of all varieties are amenable to the action of antiperiodic remedies, it might be inferred that there is but a single noxious germ which, under varying conditions, causes the various forms of malaria. Having demonstrated that the cause of malaria is a protozoon, the question naturally arises, whence its origin and how is it communicated to man. In the widest acceptation of its meaning malaria signifies bad air, or air which has been rendered so impure by noxious exhalations, or from any cause, as to produce injurious effects in the human system.

An analysis of the gaseous products of decaying vegetable matter reveals the fact that they consist chiefly of carbonic acid, carburetted, sulphuretted and phosphoretted hydrogen and ammonia. Experiments with each and all of these gases fail to produce the effects ascribed to malaria. Thus far eluding all methods of investigation, there appears to remain in the exhalations from certain soils a subtile, poisonous agency which cannot be isolated and experimented with, but which is only found after it has entered the blood.

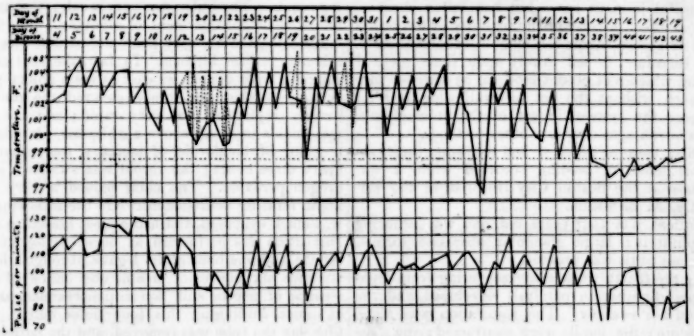
The agents necessary to produce these emanations are said to be heat, moisture and dead vegetation. Heat alone is not sufficient to induce malaria, as in some countries where the heat is extreme there is freedom from this disease. Neither is the sudden transition from heat to cold sufficient to cause it, as instanced in the sandy deserts where cold nights succeed hot days. Moisture alone or associated with certain temperatures, will not induce this malady, for we find in fogs occurring at sea a harmless condition. But dead vegetable matter, in connection with a certain degree of heat and that proportion of moisture favorable to the processes of decomposition, is regarded as essential to the evolution of this parasite. The presence of low grounds, marshes and swamps in temperate climates afford that conjunction of agents most favorable to the evolution of this poison.

This miasm is assumed to arise during the retrogression of organic matter to the inorganic state under the favorable conditions of heat and moisture. But there must be a certain relation of these factors, one to the other, as in case of excessive moisture when the ground is wholly covered with water there is no malaria; it is not during the period of the overflow, but during the subsequent period of drying up of the water, with the needful conditions added, that this disease prevails.

Again, it is not necessary for an inundation of a previously dry soil to produce this result, but the artificial draining of ponds or the accidental breaking of dams has been followed by an outbreak of this malady in their vicinity. The vicinity of a miasmatic marsh may not be an insalubrious locality for habitation, for where a steady wind prevails during the sickly season people living to the windward side may not be affected. The direction of the wind, especially if it be across a malarial area, may affect persons living in the adjacent upland country several miles distant. If one of the factors which cause malaria be removed, an improvement in the general condition ensues, as in drainage, which from remote ages has been regarded as the best method of improving malarial soil. In order that malaria should be generated, it is necessary to have a certain degree of humidity, a soil containing decaying organic matter, and a temperature of over 60° F.; yet when these conditions exist, malaria does not always abound. How then shall we account for the apparent exception to this rule? One other factor is supposed to wonderfully influence the evolution of this parasite, and that is the effect of growing vegetation. Dr. H. C. Wood, in his chapter on miasmata, mentions the fact that living vegetation destroys malaria during the process of its growth. When the proper relation exists between the miasm generated and the capability of the growing plants to dispose of it, no malaria prevails, although the factors necessary for its generation are in abundance. Either through the roots or leaves, or probably both, the whole or a greater part of the malaria generated may be assimilated, and thus there will be no evolution of the

miasm. It is only when this relationship between the malaria on the one hand, and the assimilative power of the verdure on the other is disturbed that the malarial poison affects the human organism. Several observers have in times past announced the discovery of this protozoon outside the body, but in no instance could it be proven.

Malaria is frequently combined with another poison in the human economy. One frequent combination is with typhoid fever. It has been thought that these two diseases were antagonistic; but the truth seems to be that they may be and are often combined in the same individual at the same time. How then shall it be determined? Those who have had large experiences in typhoid fever are prepared for wide clinical variations, so that not alone upon the clinical manifestations can we rightly judge. No other way is left but a microscopical examination of the blood.



The term "typho-malarial" fever does not designate a new or distinct type of disease, but is a term which is conveniently applied to the combination of malaria and typhoid fever in the system at the same time. We should at least expect that there would be as large a mortality from the combination as from either alone; but such is stated not to be the case, for, according to a certain author, there were in a certain district forty deaths to every one hundred cases of typhoid fever alone, yet from the combination, typho-malarial fever, there was a mortality of only seven per cent. in the same locality. On the other hand, there can be no doubt but that numerous cases of so-called typho-malarial fever are simply mild cases of typhoid fever, so that considerable allowance must be made for the reports.

During the past season I have had quite an interesting case of the combination which we have just been discussing, and herewith present the clinical chart for inspection. It is not often that the physicians upon Cape Cod have the privilege of witnessing these cases, and this one did not originate there.

The patient, a boy of thirteen years, came from some part of Pennsylvania about one week before he was taken sick. Up to the day before I was called he had shown no unusual symptoms, in fact had been in bathing the second day previous. This case was fortunate in having a trained nurse, who carefully took the temperature and pulse at the prescribed time. According to the symptoms and clinical chart, the disease pursued a typical course for typhoid fever up to July 19, 1894, or the twelfth day of the disease, when the patient complained of "feeling cold" and of cold chills running down the back. At this time and subsequently there were marked fluctuations of the temperature during short intervals, followed by profuse sweating.

In the chart the continuous line marks the regular morning and evening temperature, and the broken or dotted line indicates the fluctuations observed between the regular times of taking the temperature. As will be observed, in many instances there were several degrees variation in a very few hours.

In the last week of typhoid fever we may expect marked variations of temperature, but occurring as it did in this case during the second week or median stage of the disease and without any clinical symptoms which would account for it, I was in doubt as to the cause until I had made a microscopical examination of the blood. There were found plenty of the plasmodia malariæ, which accounted for the symptoms and led to the employment of antiperiodic doses of quinine, which was followed by an amelioration of the symptoms. A chance was also given to study the effects of medicine upon the plasmodia. The spores, mature forms, and old cast-off shells, so to speak, of the blood cells, afforded interesting and profitable study for a long time. This, together with the fact that a positive diagnosis had been made, and also that the patient completely recovered after a trying and extended sickness, all produced in my mind a pleasant and valuable experience.

## THE VALUE OF THE STOMACH-TUBE IN FEEDING AFTER INTUBATION, BASED UPON TWENTY-EIGHT CASES; ALSO ITS USE IN POST-DIPHTHERITIC PARALYSIS.[1]

BY WILLIAM ALEXANDER MORRISON, M.D., EAST BOSTON.

One of the most serious difficulties met with by the physician who is called upon to treat the diseases affecting the throat is the inability of the patient to take a proper amount of nourishment. The cause of this is to be found partly in the mechanical obstruction produced by the swelling of the parts in certain diseases, or by paralysis of certain muscles in others,

[1] Read before the Suffolk District Medical Society, April 28, 1894.

and in part also by the fear of the pain or discomfort produced by the attempt to swallow.

This is especially true of cases after the operation of intubation of the larynx, where, owing to a mechanical interference with the act of swallowing, regurgitation of the food into the larynx may occur, causing a violent paroxysm of coughing. This is frequently quite sufficient to cause a child to absolutely refuse all forms of nourishment. As it is in diphtheria that we find these conditions present more than in any other disease, the importance of the subject becomes at once apparent.

We have in this disease an active and deadly infection which rapidly destroys the vitality of the patient, and a lack of nourishment at a critical time may baffle our attempts to aid the system to resist this poisoning, and may result in the gravest disaster.

Many attempts have been made to nourish patients under these circumstances. Rectal alimentation has proved useful in many cases, but has fallen short of the desired effect because of the inability of the bowel to retain or absorb the proper amount of nourishment. We are, therefore, forced to rely upon some method of feeding which will permit food to be carried into the stomach without the act of swallowing, and for this purpose the systematic use of the stomach-tube possesses advantages over any other method.

The first case in which I had the opportunity of using this mode of feeding occurred while I was house-officer at the Boston City Hospital, in the service of Dr. A. L. Mason.

The patient was four years old, and was suffering from diphtheria; large glandular abscesses formed and purulent otitis was present.

During the fourth week after recovering from diphtheria, post-diphtheritic paralysis developed, and the child could not swallow. The respiration was eight to the minute; the pupils were contracted; the face was pale; the condition torpid. Rectal enemata proving ineffectual, I resorted to the stomach-tube, at first using only a gag, and passing the tube through the mouth into the esophagus, but afterward found it more easily accomplished by lubricating the tube and passing it through the nose.

By this method I fed the child with the tube for four weeks, giving six ounces of cream, two ounces of brandy, three drops, three times a day, of tincture of nux vomica, and a digestive ferment. The patient was unable to cry aloud or speak during this time, but gradually made a complete recovery. Without this treatment, the child would undoubtedly have died.

The result in this case was so satisfactory and the method of application so relatively easy that I have continued this treatment for the past four years in my private practice. In cases of intubation it has proved especially satisfactory. During this time I have performed the operation twenty-eight times. Twelve children have recovered, or forty-three per cent. I have personally attended to every detail without the assistance of a trained nurse in any case.

To obtain satisfactory results, and to prevent undue exhaustion in the child, certain precautions must be observed. Two assistants are required. The child is rolled in a blanket with the hands by the sides. The first assistant sits in a chair near the bedside, and holds the child firmly in a reclining position upon his left knee. The second assistant holds the patient's head immovable. A soft-rubber catheter, to which a funnel is attached, is lubricated and introduced into the nostril with the eyelet on the under side, as it offers less resistance in entering the naso-pharynx.

For nourishment, cream with about twenty per cent. of fat is used; and to aid digestion, Metcalf's liquor pancreaticus and Fairchild's essence of pepsin in equal parts are used, also brandy, tincture of nux vomica, and tincture of digitalis. Any preparation of iron or any other liquid medicine may be added according to circumstances.

If bichloride of mercury or calomel has been employed, it is omitted after intubation, owing to its tendency to irritate the stomach and intestines. On several occasions iron or digitalis has caused some nausea after being administered through the tube, but on omitting them, this symptom has disappeared.

The following case proved very interesting on account of the emaciated condition of the patient, a child of six years who had just recovered from whooping-cough. The pulse was very weak; the urine contained one-eighth per cent. of albumen. The hygienic surroundings were very poor, the patient sleeping on a lounge in the kitchen. In fact, the poor child was suffering from neglect as well as from abject poverty. A grayish-white membrane covered the tonsils and uvula; respiration was very rapid; and the patient was unable to speak above a whisper. One-sixtieth of a grain of bichloride of mercury was administered every three hours; the throat was swabbed with hydrogen peroxide. The child passed a very restless night, refusing nourishment. On the following day it was much cyanosed, and had almost ceased to breathe. Intubation was performed at once, giving immediate relief; and one hour after, I gave through the stomach-tube six ounces of cream, one ounce of brandy, essence of pepsin and liquor pancreaticus, each half an ounce, continuing this four times daily. On the fifth day the tube was removed, and the patient made a good recovery, although in this particular case, she was unable to speak aloud for six weeks.

Another illustrative case was as follows: A child six years old had been ill for forty-eight hours without medical attendance. I found her breathing badly, and it was very evident that mechanical interference was needed. Half an hour after, intubation was performed with instant relief.

Having ascertained that during the last twenty-four hours the patient had only taken one teaspoonful of brandy with water and four teaspoonfuls of milk, I introduced the stomach-tube and gave at each feeding eight ounces of cream, two ounces of brandy, liquor pancreaticus and essence of pepsin, each two drachms; the pulse being rapid, five drops of tincture of digitalis was given.

Eight hours after, in coughing, the child expelled the tube. The breathing then appeared natural for a time, but in about ten hours I found it necessary to intube again, replacing the expelled tube with a larger one.

On the following day the patient coughed up a large amount of mucus having a disagreeable odor, and soon after most of the cream that was taken in the previous feeding was vomited. At the next regular hour for feeding, only four ounces of cream was given and liquor pancreaticus and essence of pepsin, each one-half an ounce, which were retained. From that time the patient took the full amount of nourishment, and at the expiration of five days was perfectly well.

To show the advantages of the stomach-tube in cases where intubation is not performed, the following case is interesting: A child four and a half years old was taken ill May 17, 1891. The tonsils and uvula were covered with membrane, the former unusually swollen, and in a few days a fetid odor was discernable. Ten days after formation of membrane, post-diphtheritic paralysis ensued, and the patient could not swallow. The pulse was very weak, the child could not rest day or night, crying incessantly. The mother became discouraged and said, when I mentioned stomach-tube, that she did not wish to torture the child, as she considered it a hopeless case. After much persuasion I resorted to feeding with the tube, through which was given on an average daily thirty ounces of cream, six ounces of brandy, essence of pepsin and liquor pancreaticus, two ounces each, twenty drops of tincture of nux vomica, and twenty drops of tincture of digitalis.

During the following week, the glands of the neck became very much swollen and discharged a great amount of pus; paralysis of hands and feet followed.

Treatment with the tube continued for about ten weeks, four times daily, when the patient was able to take some liquid food without regurgitation. At the expiration of four months, the child could walk quite well, but it was fully six months before he had entirely recovered.

Now these few cases illustrate fairly well the results obtained in all cases that have come under my observation during the past four years. In all my cases of intubation, this method and no other has been used. No nourishment has been permitted by the mouth in any case.

There has been no difficulty in most cases in the digestion of the amount of food given, and, after the first few times, the child has suffered little or no discomfort during the passage of the tube. In comparison with the ordinary method of feeding these cases, it possesses the advantage of permitting a definite amount of food to be given to the child at regular intervals, thus giving the stomach its natural periods of rest. It is quite true that the Casselberry postural method permits food to be swallowed fairly well, but the great difficulty lies in the impossibility of making the parents or nurses

| No. | Date. | Age. | Causes of Death. | Tube Worn. | Termination. | Remarks. |
|---|---|---|---|---|---|---|
| 1 | November 16, 1889 | 4 years | Septicemia | 48 hours | Fatal | |
| 2 | December 3, 1889 | 3 years | .... | 5 days | Recovery | |
| 3 | December 24, 1889 | 5 years | .... | 4 days | Recovery | |
| 4 | January 14, 1890 | 4½ years | Extension | 12 hours | Fatal | Tracheotomy. Death in 20 hours. |
| 5 | February 27, 1890 | 2½ years | Extension | 24 hours | Fatal | Refused tracheotomy. |
| 6 | March 6, 1890 | 3 years | .... | 5 days | Recovery | |
| 7 | April 18, 1890 | 14 months | Extension | 16 hours | Fatal | Tracheotomy. Death in 6 hours. |
| 8 | May 2, 1890 | 6 years | .... | 5 days | Recovery | |
| 9 | September 5, 1890 | 6½ years | Extension | 48 hours | Fatal | Refused tracheotomy. |
| 10 | November 20, 1890 | 4 years | Extension | 16 hours | Fatal | Tracheotomy. Lived 10 hours. |
| 11 | January 30, 1891 | 5½ years | .... | 5 days | Recovery | |
| 12 | March 15, 1891 | 6 years | .... | 5 days | Recovery | Eight hours after intubation coughed out tube. Ten hours after introduced larger one, as dyspnea had returned. |
| 13 | May 10, 1891 | 6 years | .... | 5 days | Recovery | |
| 14 | October 12, 1891 | 2½ years | Septicemia | 2 days | Fatal | |
| 15 | November 28, 1891 | 3½ years | .... | 3½ days | Recovery | Complained of constant pain while tube was in larynx. |
| 16 | February 29, 1892 | 2 years | Broncho-pneumonia | 18 hours | Fatal | |
| 17 | April 13, 1892 | 4 years | Tube plugged | 30 hours | Fatal | Tracheotomy. Death. |
| 18 | June 5, 1892 | 3 years | Pneumonia | 3 days | Fatal | |
| 19 | September 11, 1892 | 20 months | Extension | 36 hours | Fatal | Refused tracheotomy. |
| 20 | October 12, 1892 | 4 years | Extension | 24 hours | Fatal | Tracheotomy. Lived 10 hours. |
| 21 | November 16, 1892 | 3 years | Exhaustion | 3 days | Fatal | |
| 22 | November 27, 1892 | 1 year | Extension | 24 hours | Fatal | Refused tracheotomy. |
| 23 | January 3, 1893 | 4 years | .... | 4 days | Recovery | |
| 24 | March 18, 1893 | 4 years | Heart failure | 21 hours | Fatal | |
| 25 | October 15, 1893 | 4½ years | .... | 5 days | Recovery | |
| 26 | November 19, 1893 | 16 months | Heart failure | 12 hours | Fatal | |
| 27 | January 23, 1894 | 5 years | .... | 5 days | Recovery | |
| 28 | February 25, 1894 | 5½ years | .... | 5 days | Recovery | |

| | | |
|---|---|---|
| Between 1 and 2 years | 4 | Secondary tracheotomy performed in five cases; all died. |
| Between 2 and 3 years | 6 | Septicemia, two cases, both died. |
| Between 3 and 4 years | 7 | Extension of membrane, eight. |
| Between 4 and 5 years | 4 | Broncho-pneumonia, one. Pneumonia, one. |
| Between 5 and 6 years | 6 | Tube plugged, one; tracheotomy performed. |
| Between 6 and 7 years | 1 | Exhaustion, one. |
| | | Heart failure, two. |

realize the importance of this, and the child is permitted to take its food sitting up, with the result already stated. If a nourishment chart is accurately kept in these cases, the small amount actually taken is often appalling.

While this method of feeding is best carried out by the physician, it may, nevertheless, be taught to any intelligent nurse or parent.

In conclusion, we have, in feeding by the stomach-tube after intubation and in all other cases where there is interference with the act of deglutition, a method which is easy of application; which permits a definite amount of food to be placed in the stomach, thus fortifying the system against combined exhaustion and septic infection; which obviates both the discomfort and pain produced by the futile attempts to swallow; and which will also prevent the danger of deglutition, pneumonia or suffocation. Now, if extended experience shall show that it possesses these merits, it seems probable that we shall find an increase in the percentage of children saved from this most insidious and deadly disease, and much of the incessant care and trouble in their management prevented.

## THE DANGERS IN REMOVING FOREIGN BODIES FROM THE CORNEA.[1]

BY N. DARRELL HARVEY, M.D., PROVIDENCE, R. I.

THE subject of foreign bodies in the cornea is one which to most of us is so familiar and the treatment in the majority of instances so simple, that it may seem too insignificant a matter to bring to the attention of this Society this evening. But as there are not a few here who are called upon at times to treat this class of injuries, and as there are grave and serious dangers attending their removal in the ordinary way, a few words in that relation by me may not be out of place.

In a community like this, interested as it is in extensive manufacturing pursuits of various kinds, injuries to the eye from flying particles of metal and dust form a very large percentage of accidents; so much so is this the case, that in most of the large factories and mills, especially where the emery-wheel is used, some one man is to be found who from long experience has been looked upon by the other employés as possessing special skill in the removal of the foreign particles from the eye, no matter what their location. To such a man every injury of this kind is usually brought and an attempt at removal is made, which is often successful and leaves no permanent damage, especially if the particle be upon the lid or in the conjunctiva. But, as is more frequently the case, the foreign body is embedded in the cornea. This "skilled" mechanic, ignorant of the anatomical structure of the part and knowing still less of the first principles of cleanliness in such a case, to say nothing of antisepsis, with dirty hands, often pulls from his pocket his jack-knife (generally in use for cutting tobacco), and proceeds to attack the eye. Herein lies one of the most serious dangers to such a procedure. The foreign body itself is usually not aseptic, while the instrument which is often made to penetrate quite deeply into the corneal tissue reeks with filth. The dangers of suppurative infiltration of the cornea are thus certainly very great, and many eyes are lost by such infection.

I have seen several cases treated in this way in which the entire cornea was the seat of a suppurative inflammation starting from a pin-point wound caused by the impaction of a small piece of steel and subsequent botching attempts at removal.

Another cause of permanent damage to the sight is the resulting scar which follows such a wound, no matter how small. For the destruction of every particle of corneal tissue there is a resulting formation of connective tissue which remains as an opacity and affects the vision according to the size and density as well as its proximity to the centre of the cornea. So that we see the greater the area of cornea which has been injured the more extensive the scar, and the deeper the penetration of any instrument, the greater the resulting density.

Now the plan usually followed in these factories where such accidents are frequent is to locate the foreign body, and then without the use of cocaine (although in some places I believe this is now used) to jab at the particle or what looks like it, the patient endeavoring often at the same time to close the eye and dodge the impact of the knife, so that the instrument often falls short of its aim, impinging on and wounding a more remote portion of the cornea and laying it open to a resultant scar. I have seen many corneæ which have been the seat of several injuries of this nature so speckled with opacities from unsurgical procedures as to have the vision very markedly interfered with. I remember seeing a patient, who had gotten a small piece of steel in his eye and which had come out, with a hole in the cornea which almost involved its entire thickness. He had been operated upon by a fellow-workman, who had mistaken a pigment spot on the iris for a small foreign body in the cornea, and had punched away at the cornea until he had almost entered the anterior chamber. These are only a few of the many cases which all who have had to deal with such injuries see from time to time. Only a few days ago I saw the case of a man, an employé of one of the largest mills in this city, who had lost his left eye, and had gotten a piece of dirt into the right cornea directly over the pupil. A fellow-workman had worked at it, and scratched the cornea so that pain and inflammation arising, the man had become alarmed and been forced to seek medical advice.

I found the eye inflamed, and several scratches on the cornea near the site of the foreign body. A few drops of cocaine instilled into the eye soon relieved the sensibility, and a slight brush with a wisp of absorbent cotton immediately dislodged the foreign body. Had a camel's-hair brush or something of that sort been used in the first instance, it would have been enough to have removed the dirt and saved the patient the subsequent pain, to say nothing of the scars which will result from the needless knife scratchings of the cornea, and diminish the already poor vision in the only eye the patient had.

In view of the above dangers, I think the Society will agree that no cutting procedure, especially in unskilful hands, should be performed unless other means at removal have failed.

As quite a large proportion, if not a majority, of the foreign bodies in the cornea project beyond its surface and are not very firmly embedded, they can be easily brushed away. A very simple means which I have

[1] Read before the Providence Medical Association, December 3, 1894.

used for some years, and which I have no doubt many others have also made use of, is to take a wisp of sterilized absorbent cotton, and roll it on the end of a tooth-pick or cotton carrier, and simply wipe the cocainized cornea in the region of the injury. In a very large number of cases this simple means will dislodge the particle by its becoming caught in the loose fibres of cotton; and that is all, in a large number of such cases, that is necessary. The area around its point of impaction is not attacked, the least possible amount of injury has been done, and the resulting scar is reduced to the minimum. A plan used by Dr. Gould, of Philadelphia, and one which offers special antiseptic precautions is to dip the cotton in some antiseptic solution, as a solution of bichloride of mercury (1 to 5,000) or a solution of boracic acid (three per cent.) before applying it to the cornea, in this way also cleansing the wound caused by the foreign matters. This is all I claim that non-professional hands should attempt, for a large proportion of these injuries can be relieved in this way, and those cases in which further aid is needed, such as a cutting or a magnet operation, should be referred to a medical man who has the proper means and skill for such procedures.

Now, how shall we overcome this evil? As there are not a few members of this Society who have professional connections with many of the largest manufacturing establishments in this city, a great deal can be done by you gentlemen in pointing out to those in authority the dangers of using any instrument on the eye, and in suggesting the above much simpler and less dangerous method.

It would be a very easy matter for each establishment to provide itself with a bundle of tooth-picks, a small package of absorbent cotton and a little vial of a solution of bichloride of mercury (1 to 5,000). Then when an accident takes place, a perfectly safe attempt on the part of the employé can be made at removal; and in case of his failure to dislodge the offending particle, the patient can be sent to some skilled physician, and thus suffer as little permanent damage to his sight as is possible.

I trust I have been able to impress upon the Society the importance of avoiding these dangers in the treatment of this class of ocular injuries, and hope that others here to-night will express their experience and opinions, and add to the stress which I have endeavored to lay upon their proper treatment.

## Clinical Department.

### NOTES OF A CASE OF TUBERCULAR DISEASE OF THE KIDNEY.[1]

BY GRACE WOLCOTT, M.D.

M. L., twenty-five years of age, was seen at my office January 31, 1893. The mother and father were healthy. One sister had died of phthisis, and two sisters had died in infancy from unknown causes.

The patient said she had suffered for five years with offensive urine, for which she had received medical treatment at different times.

Her general condition was good, and the heart and lungs were normal.

The urine at this time had a specific gravity of 1.010; was cloudy in appearance, which did not clear on boiling; acid in reaction; contained no albumin, but considerable pus, and had a very offensive odor. Microscopically it showed abundant crystals of calcium oxalate, innumerable pus cells, a few vaginal epithelial cells, with fatty renal epithelium. The total quantity was three pints. Upon examining the bladder with a sound, a sensation was conveyed as of stone; accordingly that diagnosis was made, and the patient advised to enter the hospital for operation.

On March 6, 1893, she entered the Vincent Memorial Hospital, and two days following she was etherized, Dr. A. T. Cabot being present in consultation with myself and Dr. Ingraham. Examination showed the passage of the sound about eight inches, and a gritty sensation was conveyed by it. Operation was decided upon, and accordingly I made the usual median incision through the anterior vaginal wall, and long enough to give ample room to thoroughly explore the interior of the bladder.

The exploration showed an unusually capacious bladder, with no stone nor incrustation. The mucous membrane was somewhat rough, and small quantities of bloody mucus were brought away. A drainage-tube was introduced through the wound, and the bladder washed out with a solution of boric acid, the tube being held in place by silkworm-gut sutures.

The irrigation was kept up twice daily; but the urine continued offensive, and contained much blood and mucus, the blood, however, ceasing seven days after operation.

Five days after operation the wound had closed to the size of the tube; and on the twelfth day the tube was removed, and digital stretching of the fistula was begun.

On April 5th, just four weeks after operation, the temperature, which had been normal, rose to 103°, pulse 110; and she had chills, nausea, pains all over, and the conjunctivæ were much injected. The following day the pulse was 120 and weak, the temperature still 103°. She was cyanotic in appearance, had epistaxis, much pain in precordia, and her mind wandered. Examination of the heart showed a systolic murmur, with accentuation of the pulmonic second sound.

The question which presented itself to our minds was, Had we not a case of septic endocarditis to deal with?

She was closely watched, and fortunately soon began to improve. The urine still remained purulent; and on examination made April 18th showed the presence of tubercle bacilli. On the 26th, as the patient was opposed to allowing the fistula to remain longer, and as the urine contained no sediment, although it was alkaline and had a specific gravity of 1.010, the edges of the fistula were bevelled and sewed up with silkworm-gut and wire, union being perfect when the sutures were removed.

She was seen April 1, 1894, and reports that the urine, although still somewhat offensive, is not as bad as before the operation, but that her general condition is not very good.

I report this case as of interest after hearing Dr. Watson's paper. Our notice was called to the disease by a case which was under the care of Dr. Ingraham and myself in which Dr. Watson was called in consultation and which he has mentioned to-night.

In both cases the symptoms were those of bladder

[1] Read before the Suffolk District Medical Society, April 28, 1894.

disease; but in both we suspected the primary disease to be in the kidney, and in one of them the suspicions were confirmed. The case in which Dr. Watson was called in consultation was not verified by the actual finding of the tubercle bacilli, but in the other it was.

## Medical Progress.

### RECENT PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D.

#### SCOLIOTIC SCIATICA.[1]

A NUMBER of articles which have been collected on the subject of this unusual affection would show that the symptoms are very varied in the different cases, so that it is almost impossible to classify them. There is usually a scoliosis with the convexity towards the lame side, the scoliosis being chiefly in the lumbar region and the upper portion of the spinal column has a less compensatory curve. The whole trunk is turned towards the sound side, and the lower ridge of the ribs press upon the pelvis. The upper portion of the body is inclined forward. The leg on the affected side touches the ground but the patient is not inclined to throw the whole weight upon it. The attitude is quite characteristic. Treatment of the affection is not always satisfactory. The scoliosis disappears usually after the sciatica has passed away. The galvanic current appears to be of value in these cases, as well as massage of the muscles of the affected limb. Stretching of the sciatic by forced manipulation and appropriate gymnastic exercises are of benefit. Kocher, in more severe cases, cut down upon the nerve and stretched it with apparent benefit, although the case is reported only a month after the operation.

Sachs[2] reports a case of what is called crossed form of scoliotic sciatica with a convexity towards the affected side, and which is due to an extension of neuralgia from the sacral to the lumbar plexus. Scoliosis develops itself gradually, first in the painful stage and second in the subacute stage. Pain is due to the pressure of the muscles in activity upon the irritated nerves. Besides the treatment of the sciatica the scoliosis should be treated by suspension and correction. Ranzier[3] reports a case of the sort where scoliosis remained after the cure of the neuralgia, and only gradually disappeared. Francon reports six cases treated at Aix les Bains.[4]

#### MALPOSITION OF THE VERTEBRAL COLUMN OCCASIONED BY THE PRESENCE OF A TUMOR, AND CURED BY EXCISION.

Dr. Gerard Marchant[5] reports two cases of fibrolipoma, situated near the spine in the lumbar region, which caused a lateral deviation of the spine, and was attended with marked subjective symptoms during locomotion. The first occurred in a large man, twenty-three years of age, appearing some time after a strain, which was supposed to be the starting-point of the tumor. The tumor was the size of one's fist, situated in the left lumbar region, and easily felt, the skin being movable over it, but attached below. Locomotion was extremely painful, the pain extending down the leg; but during recumbency there were no subjective symptoms. At the time of removal the tumor was found to be adherent to the muscle, which was also found to be atrophied to a marked degree. The recovery in this case was uneventful, the symptoms entirely disappeared, and health was restored.

The second case was that of a man of fifty-three years of age. The tumor was situated in the left lumbar region, with symptoms much the same as in the former. The tumor was removed, and at the time found to be adherent to the aponeurosis of the vertebræ. The recovery was uneventful, and the symptoms entirely subsided. Both tumors were found to be fibrolipoma. In the second were found several nerve filaments, which probably explained in a measure the severity of the symptoms.

#### CASE OF PRIMARY TUBERCULOSIS OF THE LAMINÆ AND SPINOUS PROCESSES OF THE VERTEBRÆ.

Dr. John C. Roberts[6] reports a case of disease which by autopsy was proved to be a case of primary tubercular disease of the laminæ. The case presented prominent symptoms of pain in the sides and abdomen during the earlier stages, with early paralysis of the legs and sphincters, and early development of bedsores. The deformity was slight, and differed from the ordinary kyphosis in that the swelling was on either side of the median line, and there was a depression over the spinous processes. An operation was performed to relieve the paraplegia, which was supposed to be due to pus in the canal; but the child died soon after, and in the autopsy it was found that the disease was a tubercular process which had attacked and destroyed the laminæ and had involved the base of the spinous processes.

#### A CASE OF ANCHYLOSIS OF THE SPINE.

Mr. William E. Miles[7] reports a case of anchylosis of the entire spinal column, the origin of which is not explained. The boy, at the age of twelve, was treated for cervical caries, with plaster-jacket and head-support for eighteen months, after which the spine is said to have been in the same condition of anchylosis as at the time of reporting, when the patient was twenty-one years of age. After the removal of the jacket he was able to do hard labor without ill effect, and the spine remained in the same condition. The three causes of tubercular, syphilitic and rheumatic origin are considered, but still leave the case as one of undetermined origin. Although the first symptoms of the disease may have been tubercular, there was nothing to suggest this in the way of spinal projection, abscess, etc.; nor would local disease in the cervical region explain the general anchylosis of the spine. Syphilitic origin has no support, either by history or other indications of the disease, and the same is true of the rheumatic taint. There later developed an enlargement of the ankle, which with the anchylosis is rather evidence of a general cause which manifested itself in these two locations. The case is worthy of mention from the rarity of the condition at the early age of twenty-one.

[1] Zeitschrift für Orthoplidische Chirurgie, 1893, p. 63.
[2] Archiv. klin. Chur., Bd. 46, Heft 45, 684.
[3] Montpellier Medical Journal, 1893, No. 41, p. 811.
[4] Lyon Medical, Nos. 6 and 11, p. 187.
[5] Revue d'Orthopedie, January, 1894.
[6] Annals of Surgery, June 16, 1894.
[7] Lancet, November 3, 1894.

THE CAUSES OF PARAPLEGIA IN POTT'S DISEASE.

Dr. Ménard[8] has carefully considered this condition of paraplegia in Pott's disease, and a number of cases are given in which laminectomy was done; and although the author has presented little that is new, his review is of value in its corroboration of already well-accepted theories. In regard to the etiology of this affection, he accepts the usual belief that it is not due to the narrowing of the canal, but to the action which the tubercular focus itself exercises on the meninges and cord. He finds it rare in the cervical region, very rare in the lumbar, and extremely frequent in the dorsal. When in the last situation the abscess does not meet any muscular sheath which it can follow, it remains near the osseous lesion, submitted to the varying pressure of the lungs at each respiratory act, and later penetrates into the spinal canal. He favors in selected cases the operative treatment, and considers that the direct opening of a tuberculous focus causing compression offers a rational and effectual means of overcoming the paraplegia.

HEMATOMA OF THE STERNO-MASTOID IN INFANTS.

Dr. Gaudier[9] reports two cases in infants of hematoma of the sterno mastoid, which appeared during the sudden severe muscular contraction during vaccination. There is nothing of importance as regards the method of its occurrence, except that in each case during the vaccination the child turned the head forcibly away from that side, and during this severe muscular contraction a rupture of some of the fibres occurred, causing the ordinary conditions which are found after this accident. The cases are almost, if not quite unique, in that it is so seldom seen occurring some interval after birth. The author considers the usual form, and the relation that this may have to the etiology of the congenital variety, of which much has been written of late. By some authors it is considered that this is an accident caused by the pressure of the blade of the forceps, while by others that it is due to a forcible contraction of the muscles during its passage. In 68 cases of breech presentation, this condition was found to have occurred in 18, but it is also found after normal presentation, and also when there have been no forceps used. He concludes that in addition to the ordinary hematoma of surgical origin, in the new-born, there is also an identical condition with this other etiology; that being a trauma following later in the period of the first few months of life, and which as in the two observations cited, was due to the sudden muscular effort on the part of the patient, resulting in the rupture of a portion of the sterno-mastoid muscle. The symptoms and the prognosis of the treatment is identical in the two classes, and a cure without deformity should be expected.

TREATMENT OF SPASMODIC TORTICOLLIS.

Noble Smith[10] reports the results in five cases, in which section or excision of a portion of the spinal nerve was done, and in all of which there occurred a marked improvement, which lasted over the time of observation. In one, there was inability to walk but a short time; after the operation the patient was able to walk for an hour and a half and rapidly. The pain in the neck disappeared, and the deformity of the cervical spine also did not return. There was also an equally acute sensation on either side of the neck, and the motions of the head in all directions were without pain. The second case was in a man of fifty-seven, where there had been associated a painful tic of the face. After excision of the spinal nerve, the spasm quickly disappeared. In another, which had lasted four years, the contraction disappeared, but the deformity of the cervical spine remained. In another, the spasm of the rotators of the neck had not disappeared and required a second operation. Smith considers this treatment in a favorable way, and regards it as a valuable means of treating this persistent condition.

TORTICOLLIS OF RHACHITIC ORIGIN.

Dr. Phocas[11] reports three cases of torticollis occurring in young infants from ten to eighteen months of age, in which the deformity was apparently due to rickets. The diagnosis was made on the absence of the history of congenital defect, the instances having all occurred in cases of normal labor, and the condition having developed after some months of life. In none of these was there either contraction of the sterno-mastoid, or of the deep muscles of the neck, nor was there any evidence of paralysis as described by Guyon, while on the other hand the cases all showed evidences of general rickets. The treatment is directed toward that of the general rickets.

As diagnostic points, he mentions that his cases all occurred in natural birth, with no sign of deformity until later life. The deformity of the head consists of a turning of the head toward the shoulder, in all of his cases being to the left, with the production of a deep fold in the side of the neck. The chin is slightly elevated and the face turned slightly toward the right. When an attempt is made to correct the position of the head, there is little resistance met by the sterno-mastoid, but when left to itself, the head returns to its malposition. Usually lateral deviation of the head follows its throwing forward, and this position persists long after the torticollis has been corrected. The pain is not severe; yet the infants frequently resist manipulation, cry easily and frequently show a grunting respiration. The anterior muscles are not found contracted and only occasionally the posterior. In all cases the other evidences of general rickets will be found. The duration of the condition is usually of several months; the lateral deviation of the head disappears before the forward inclination, which usually persists for a long time.

PSYCHICAL TORTICOLLIS.

Brissand[12] gave the name of psychical torticollis to a peculiar form of wry-neck which is not due to any organic change, but which is apparently of a psychical nature. It is characterized by the inability of the patient to control by the will the muscles of the neck, although it is easy for the patient to correct by means of the hands the faulty position by a slight pressure of the finger upon the nose or upon the head. It is termed by the writer a local paralysis of the will. It is often accompanied by other neuroses and psychoses, neurasthenia, epilepsy and so-called functional spasms. This prognosis is doubtful. The treatment should be psychical.

[8] Révue d'Orthopedie, January, 1894.
[9] Loc. cit., 1894, No. 4.
[10] Lancet, August 26th.
[11] Révue d'Orthopedie, 1894, No. 1.
[12] Gaston, Frederic, Bontaire: Paris Thesis, 1894.

### SPASMODIC TORTICOLLIS.

Richardson and Walton[13] report several cases of this affection, cured or improved by the removal of a portion of the supplying nerves, that is, the spinal accessory on one side, and branches of the cervical plexus on the other.

### AN EXPLANATION OF THE GREAT FREQUENCY OF RICKETS AMONG NEAPOLITAN CHILDREN IN AMERICAN CITIES.

Dr. Irving M. Snow,[14] of Buffalo, has collected the statistics of rickets among the different nationalities of Buffalo, and has from these studied the causes which lead to the frequency among the Italians. In his investigation, he studied the prevalence of rachitic children among the Italians in relation to the proportion among the other nationalities. The attempt is made in his paper to show that the disease among the Italians is due to the effect of the cold, damp, northern climate "upon the offspring of a race that has lived for many hundred years in the warm, dry, sunny air of Naples and of Sicily. It is the physical deterioration of a southern race in a northern climate. I hope to be able to prove that the usual causes of rickets — city life, improper feeding, acute or chronic digestive disorders, bad air, crowding in dwellings, uncleanliness, infectious disease—which produces rachitis in a moderate percentage of the children of the northern races, act with far greater frequency and virulence upon the first generation of Neapolitans born in America."

The Italian children about Buffalo are all the children of Italians who have recently immigrated; and he has found that they all come from the region round about Naples where their life has been passed out of doors in a warm climate. Their hygienic surroundings are fully equal to that of the other races about Buffalo. They are not crowded, being only about one hundred to an acre, and their food is fully equal to that of the Irish-Americans and the other races found in the city of Buffalo. The paper concludes quite conclusively that rickets develops rapidly among the first generations of Neapolitans born in this country, but the observations are not carried far enough to prove the influence that these same conditions would have upon the later generations.

### STUDY OF CHILD GROWTH.

Dr. Bayard Holmes,[15] of St. Louis, has reviewed the rather extensive work of Dr. Porter, of that city, who has collected the data from 34,354 school children, thus securing nearly 1,000,000 facts. Much of the work corroborates the facts which have already been well accepted in regard to the growth and development of children, particularly the relation between the sexes. A few points, however, seem to be comparatively new and deserve particular mention, as some of his tables indicate that the relative growth of children of different nationalities shows a decided difference, and perhaps in a measure accounts for the different figures which are obtained by observers in different cities. He also finds that in the pre-pubertal period the girls of the upper classes are heavier than the daughters of the manual laborers. From the fact, however, that so many are taken from school at about this age, the further observations of this as to whether this relation continues to be preserved cannot be so well studied. He finds that the period of slow growth of the girls is from six to eleven, or two years earlier than boys, and that after this age the girls are larger than the boys for a certain period, which is shorter with the larger girls than with the smaller. Among those with whom there is a rapid growth, the period in which the girls are larger than the boys is a period of three years and four months; whereas in the smaller types this period is three years and ten months. There is also an interesting relation found between their physical development and their mental capacity; for instance, the larger children seem to have more mental capacity than the smaller. The observations of the ages and weight of different grades show that of children of the same age in different grades the heavier children will be found in the higher grades. He urges a strict supervision over these children and the adapting of the work not only to their mental but to their physical ability. He suggests also that it might be well to remove the girls from competition during their stage of pre-pubertal acceleration, or adapting their work to their growth at this time. He also suggests that all the children who come under the mean percentage should be under the supervision of their parents. Those below the twenty-five-per-cent. grade should be under the supervision of a properly experienced physician.

### INTERNAL DERANGEMENT OF KNEE.

Messner[16] describes the dislocation of the meniscus of the knee-joint, as explaining the hitherto misunderstood cases of so-called internal derangement of the knee. He has met seven of these cases, and it is caused in his opinion by the rotation of the body while the foot is placed firmly on the ground preventing the rotation of the leg. A swelling is noticed at the outer side of the patella. The meniscus becomes displaced and is caught between the femur and the tibia, and presents an external prominence the thickness of a pencil between the inner side of the patella and the internal lateral ligament. To reduce the dislocation the knee is taken between the hands, the thumb pressing upon the projection. The swelling disappears suddenly, and the pain at the same time. The movement of the knee becomes free again. Messner is inclined to think that the deformity in the forearm of children as described by Goyrand is due to subluxation of the triangular cartilage. He has seen three cases of the elbow.

S. J. Mixter[17] reports six cases. In several of these there appeared to be a tear of the meniscus following the dislocation.

Lardy[18] reports two cases of tear of the semilunar cartilage, with removal and cure.

### MANUAL CORRECTION IN KNOCK-KNEE.

Zuffi reports a number of cases corrected at the Milan institution. He prefers in certain instances manual correction to osteotomy, in that he regards the latter as more dangerous. Mechanical treatment requires time. Manual correction can be done at any time, needs no instrument, is without danger and is certain. The operation is not to be undertaken under three, because the rachitic process does not cease before that time, nor should it be done over eighteen, as there is then danger of rupturing the external

[13] American Journal Medical Sciences, January, 1895.
[14] Medical News, September 22, 1894.
[15] New York Medical Journal, October 6, 1894.
[16] Berliner Klinik, 1893, No. 65.
[17] Transactions American Surgical Association, 1893, p. 29.
[18] Révue de Chirurgie, 1894, p. 493.

lateral ligament. If there is much curvature of the thigh or of the leg, osteotomy is to be preferred. The external lateral ligament was not torn in 800 cases; and the danger of this accident is therefore slight. The supra-condyloid fracture need not occur if care is used; and even if it does, it is less injurious than a subcutaneous osteotomy. In performing the operation the patient is placed upon a strong table, the affected leg being placed upon a raised block. The assistant steadies the patient and fixes the pelvis. The second assistant presses the greater trochanter and the external condyle, and gives an opportunity for a direct application of force. The operator places one hand upon the malleolus and the other upon the calf. Force should be applied slowly, and gradually increased. A cracking sound shows the separation of the epiphysis. A plaster-of-Paris bandage is applied.

CURVED RESECTION OF THE KNEE.

Helferich [19] prefers in right-angled anchylosis of the knee instead of the ordinary wedge-shaped excision, the removal of a small portion of bone of a curved shape. In this way less shortening of the limb results as the cartilage between the epiphysis and diaphysis can be in this way avoided. A convex portion of the bone is sawed off from the end of the femur, and a concave from the tibia, and the leg is straightened; the incision through the soft parts is similar to what is used in ordinary excision. In order to prevent the narrowing of the popliteal artery by too rapid stretching, the author advises that the limb should after operation at first not be put up in a straight position, the position being improved later.

*(To be continued.)*

## Reports of Societies.

### SUFFOLK DISTRICT MEDICAL SOCIETY.

JAMES J. MINOT, M.D., SECRETARY.

REGULAR Meeting, Saturday, April 28, 1894, DR. A. L. MASON in the chair.

DR. F. S. WATSON read a paper on

SOME OF THE CLINICAL FEATURES AND THE SURGICAL TREATMENT OF PRIMARY TUBERCULOSIS OF THE URINARY ORGANS.[1]

DR. ABNER POST: A few years ago Dr. Bryson, whom Dr. Watson has quoted, who was at that time carefully studying genito-urinary tuberculosis, said to me the reason why we saw so few cases of urinary tuberculosis in Boston was because our attention was not drawn to it, that certainly a section of the country where tuberculosis of the lungs and other portions of the body was so frequent as in New England must certainly present many cases of urinary tuberculosis. My attention was, of course, drawn to the subject from that date more carefully; and the more my eyes have been opened to see such disease the more frequent are the cases. I have tried to find some reason to explain why we have seen so few, why cases are so seldom diagnosticated as tuberculosis; and it seems to me there are several reasons which partially explain it. Of course, our attention has been drawn to it very definitely only of recent years; but I think we are still too ready to accept certain cases of cystitis as idiopathic in character. Idiopathic cystitis, it seems to me, must disappear in the same way that idiopathic peritonitis has practically disappeared. Another reason seems to me to be that we are too ready to accept that form of disease which appears in the genito-urinary tract as a manifestation in some shape of venereal disease. We are too apt to approach such cases with the idea that venereal patients are liars, and that if their story fails to agree with our own preconceived idea it is still another manifestation of their tendency to conceal the truth. I have no idea of upholding venereal patients as models of truth and veracity; but it is the wrong attitude for the practitioner to hold towards them. It is not the way to arrive at the correct diagnosis, and perhaps the trouble is still more aggravated by what I believe to be the fact, that tuberculosis is not so infrequently superimposed upon a ground already diseased as a result of gonorrhea. Another reason, I think, why we lose some of these cases or fail to appreciate their true nature is because many of them appear in the testicle primarily, or at least the first outward manifestation to which our attention is drawn is in the testis. These cases are very often complicated by hydrocele, and the practitioner, seeing the hydrocele, is satisfied with the diagnosis of hydrocele. How often do we find a hydrocele which is tapped or which is undergoing radical cure complicated with a diseased testis, so that it is occasionally said that hydrocele is often complicated or accompanied by disease of the testis. It seems to me that we look at matters through the wrong end; it is better to say that hydrocele is a complication or a symptom of disease of the testicle. I am not prepared to say that hydrocele never occurs alone, but in the very large proportion of cases it is symptomatic of disease of the testis itself; and I think it would be possible to recite case after case in which the diagnosis of hydrocele had already been made, in which the testis was found tubercular. I can recall a case sent to me for radical cure in which the hydrocele was very evident. I had already begun to examine testicles pretty carefully under such circumstances, and I said to the young man that his disease was not hydrocele alone, but disease of the testis behind it. After the fluid was drawn off it was easy to make out the epidydimis, which was characteristic of tubercle, and I questioned him further. I found he belonged to a phthisical family, that he spent the winter in Florida with a brother who was highly phthisical and whose death was expected. These certainly are some reasons why we have overlooked the disease. I think another reason is that we are taught to expect in cases of tuberculous disease in the meninges, disease in the digestive tract, but the genito-urinary tract is not held up to us as a region in which to look for tuberculous manifestations. Certainly, Dr. Watson has spoken so far only of tuberculosis in the urinary tract as a primary disease. It is sometimes extremely difficult to know whether the disease is primary; and its complication with tuberculosis in other places certainly deserve study for a special reason, because of the difficulties of treatment, which are just as difficult in secondary as in primary tuberculosis. The operative treatment is certainly sometimes beneficial, but there is one additional reason why it should not be too freely carried out, and that is the difficulty with

[1] See page 121 of the Journal.

[19] Langenbeck's Archiv., Bd. 46, H. 3.

which operative wounds are induced to heal. I had this winter a striking example of it in a comparatively young man who had tuberculosis of the bladder and probably of one kidney also. The pain which that young man suffered was intense. He had been examined for stone once or twice with no benefit, but rather with an increase of the symptoms. The pain was so great that he was constantly under the influence of morphia, and cocaine was also daily administered. With the hopes of benefiting him somewhat, I made an incision through the perineum hoping I might find some spot that could be curetted. No such spot appeared, but I was able to establish complete drainage of the bladder and by careful treatment afterwards, the instillation of iodoform oil being one of the important methods of treatment, I succeeded in giving the man very great relief, so that he was enabled to dispense entirely of morphia and cocaine. There was at least a temporary improvement in his general condition; but at the end of three months, which was the last time I saw him or heard from him, the wound in the perineum was still unhealed, and that is the third wound in the perineum which I have seen which has failed to heal after a reasonable length of time. One of them was a fistula in the first place, which followed a bruise in which tuberculosis was shown to exist in that patient by disease in both testes and by the discovery of the tubercle bacilli.

DR. THORNDIKE: I am very glad Dr. Watson has taken occasion to read a paper on this subject, because, as Dr. Post has said, our knowledge of the clinical history of urinary tuberculosis is very slight and it is only by the accumulation of such individual experiences that we can hope to enlarge it to any extent. It is true, I think, that urinary tuberculosis is not a rare disease, but exists in a good many cases and sometimes for a very long time without manifesting any symptoms approaching acuteness. When such symptoms do arise, symptoms which lead to the patient's seeking advice, the clinical knowledge at the disposal of the practising physician is so comparatively slight that faulty diagnoses are frequent, and the trouble is very often overlooked. Urinary tuberculosis is rarely localized in one organ. In whatever portion of the urinary tract it may have its origin it spreads, as a rule, with great rapidity, covers in a short space of time a sufficient area to give rise to symptoms of very varied kinds, so that the clinical picture may direct the attention of the physician to an organ at some distance from the real seat of the disease. For example, we very frequently have a tubercular pyelitis with exclusively bladder symptoms, symptoms which point to an uncomplicated cystitis; and these bladder symptoms may not be simply symptoms of reflex bladder irritability, but symptoms directly dependent upon coincident tubercular disease of the prostatic urethra and neck of the bladder. The diagnosis is not easy to make; and if the experience of careful observers can be formulated, much light will, of course, be thrown upon the clinical side of tuberculosis in the urinary tract, and many of the cases of so-called idiopathic cystitis will undoubtedly be explained. Dr. Watson has begun such a formulation in his paper. Without attempting to discuss the individual symptoms which Dr. Watson has detailed at some length, I will only say that in my belief all cases of chronic inflammatory disturbance of the urinary tract which have not yielded to careful treatment, which have been distinctly excited and made worse by any instrumental interference, or which have had unaccountable exacerbations, should be suspected. They should be carefully watched for any hint which may lead to a better clinical diagnosis. Of course, the only way to verify that diagnosis is by means of the microscope; but if we have a series of such papers as we have had to-night, I think we may have a distinctly better idea of the clinical nature of these diseases before very long.

DR. GRACE WOLCOTT: In regard to the case Dr. Watson mentioned, it was of a girl nineteen years old. She was seen in January, 1891, and then had very great trouble from incontinence, which brought her to desire some active interference. She was seen in April, 1891, by Dr. Watson, who performed the operation. She had the signs of recovery of which Dr. Watson spoke. She came into the hospital weighing eighty-five pounds, and gained rapidly in weight after she got over the immediate effects of the operation. She died eighteen months after operation.

Dr. Wolcott then presented

## NOTES OF A CASE OF TUBERCULAR DISEASE OF THE KIDNEY.[2]

DR. REYNOLDS: I am not fitted to speak of this subject as regards tuberculosis of the male bladder, and am unable to speak from my own experience of tuberculosis of the female bladder, but I am somewhat surprised that in the discussion no reference has been made to the work recently done by Dr. Kelley, of Baltimore, on this subject. Kelley has succeeded in demonstrating that tuberculosis of the female bladder is commonly accompanied by tuberculosis of the ureter, upsetting the former impression that such diseases almost invariably skip the ureter and localize themselves in the bladder or kidney. I had the pleasure last autumn of seeing Dr. Kelley demonstrate three cases of tuberculosis of the bladder which he had at that time under treatment, and of interviewing the patients myself to get their impression of the results of treatment. All three patients agreed most heartily with Dr. Kelley in the statement that their symptoms had been entirely relieved with great rapidity during treatment. The condition of the bladder of the patient who had been longest under treatment was much better than that of either of the others, and Kelley assured me she had been originally as badly off as either of the two others he showed me. He was treating them, so far as the bladder was concerned, simply by local applications every day or every other day, of a solution of nitrate of silver, under which the tubercular ulcerations seemed to be healing with considerable rapidity. So far as the ureters were concerned, his treatment was limited to the establishment of patency in the kidney by catheterization of it. I think that Kelley's work has not yet been carried on sufficiently long to enable him to make any statements about radical benefit. I think no one else has as yet an experience that dates back as far as his own. As far as the urinary organs of the female go, we are now able to deal with the disease very directly. I have been for some months now actively interested in Kelley's method of examination of the bladder, and can testify to the great ease with which the posterior and upper parts of the vesical wall can be brought under observation, and of the great ease with which topical treatment can be directed to them. I think it is perhaps an interesting question

[2] See page 131 of the Journal.

whether cystoscopy of the air-distended bladder may not prove of value in the male bladder. It is a question whether the treatment by topical applications of nitrate of silver is not to prove of value.

DR. WATSON: I am very glad that Dr. Post and Dr. Thorndike confirm the impression which I have, and which was the reason for my presenting this paper, namely, that this disease is not recognized so often as it should be in this neighborhood; and I think that if the symptoms which are the most characteristic are borne in mind it is much more likely to be noticed oftener. In regard to the treatment of Dr. Kelley, I have never treated cases by this method. I have treated cases by the application of nitrate of silver to the bladder in the ordinary way, and remember two in the male early in my series in which the increase of the local symptoms was so great that I desisted. I do not think I have ever seen such intense pain as was set up. The nitrate of silver treatment in the ordinary way has been tried by Guyon and his school with some success. I doubt whether it will prove a panacea.

DR. W. A. MORRISON read an account of

### THE VALUE OF THE STOMACH-TUBE IN FEEDING AFTER INTUBATION, BASED UPON TWENTY-EIGHT CASES.[2]

DR. WHITNEY: I think the importance of the subject Dr. Morrison has presented to-night is very great. Forced feeding or gavage, as it has been termed, has received very little attention until quite recently from men who are treating these cases. The principal investigator in this country has been Dr. Holt in New York, who has used this method of feeding, and in a discussion before the New York Academy of Medicine about a year ago reported certain of the results he had obtained by forced feeding through the stomach-tube. In an article published in to-day's *Medical Record* he reports still further results from this same method. He described the results obtained from some four hundred cases treated in three New York Infant Hospitals. His method has been very satisfactory indeed to himself, and has consisted in passing a tube through the mouth into the stomach instead of through the nose. The first case I think was treated by the nasal tube. I think that the advantage of the nasal administration of food through the tube is a very distinct one indeed. The method by the mouth means using a gag, the possibility of its slipping, and the possibility of the child biting the tube. My experience in using the gag in intubation has convinced me that it would be more satisfactory to have a straight passage through the nose into the stomach when using the feeding-tube. I think, in cases of intubation, the results are especially satisfactory, and it is in this class of cases that I am particularly convinced of the value of this method. The great obstacle in the treatment of cases of intubation has been in the past that it was almost impossible to get the child to swallow, and many surgeons in the beginning gave it up on account of that difficulty and returned to tracheotomy. Several attempts were made to overcome this difficulty by mechanical means. Dr. Ingalls, of Chicago, invented a hinged-tube which failed absolutely. Others who followed him in modifications of the tube shared the same fate. The most satisfactory advance in the treatment of these cases took place when Casselberry pointed out that lowering the child's head was sufficient to obviate all difficulty. When that can be carried out it is all very well; but the position is so unnatural that a child always objects to it, and the problem resolves itself into forcing the *parents* rather than the child to submit to it. So far as I have seen, they object from a feeling of sympathy to disturbing the sick child, and it takes the nourishment as it pleases, and coughs and strangles. I do not think the refusal to take food after intubation always depends upon dysphagia, but sometimes upon anorexia; and it seems to me a great comfort if we can place in the child's stomach a definite amount of cream and peptonized milk and brandy and medicines, and feel it is going to be assimilated. After the relief of dyspnea by the tube, which is almost always complete, we have simply a case of diphtheria to treat; and the treatment of diphtheria seems to me to be resolved into the question of nourishment and stimulation, aside from the local treatment, and this cannot be done, I think, satisfactorily in all cases. I can recall cases which would have been saved had this method been used. Dr. Morrison's percentage of recoveries, I think, is something to be proud of. So far as I am familiar with series of the same number of cases I think it is the largest. In seventy-eight cases I reported before this Society a year ago the percentage of recovery was about thirty-three. Those I have done since then have made the total number about one hundred, and I have not been so fortunate in my percentage of recovery, so that I think it is about thirty, which is about the average; and I think that percentage of recovery may be increased a good deal by forcing the nourishment systematically. I think that this method can be taught easily to a nurse. I am sure we all appreciate the care and industry Dr. Morrison has shown in treating these cases. One point I should take exception to is his abandonment of corrosive sublimate. I am still of the opinion that of internal methods it is as good as any we have. Jacobi was, I think, the first to bring out the treatment, and is still a believer in it. I have seen cases in which the membrane disappeared from the fauces and reappeared after its discontinuance, and I have not seen much irritation of the stomach or bowels. I am sure that the amount of labor required in personally attending to all the details of these cases is well worthy of our appreciation; and I am quite sure we that shall be under obligations to him for leading the way to a proper treatment of this class of cases.

DR. PRESCOTT: It is so late I think there is little to be said about the treatment of diphtheria and the method of feeding by the stomach-tube, except to say that anything that will make it easier to feed a child, especially after intubation, is to be welcomed. The few cases that I have seen have not been as satisfactory as Dr. Morrison's have been, because of the difficulty in the cases in which it was tried of getting the tube through the nose and throat, owing to the filling up of the pharynx and the nose with false membrane; but it seems to me that in cases where the tube can be easily passed it must add a great deal to the chance of the child's recovery.

DR. MORRISON: I desire to remark that if one finds it difficult to pass a medium-sized soft-rubber catheter, a smaller one may be used.

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DIPHTHERIA IN LONDON DURING 1894. — During the year 1894 there were 13,694 cases of diphtheria reported in London, with 3,195 deaths, as against 1,962 deaths in the previous year.

[2] See page 127 of the Journal.

THE BOSTON

# Medical and Surgical Journal.

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## THE ETIOLOGY OF CARCINOMA.

THE etiology of carcinoma remains one of the darkest subjects in pathology, in spite of the numerous theories which have been advanced to explain it. Of late the parasitic theory has been the most prominent. In the last five years many articles have appeared describing structures within the tumor-cells, which are supposed to be parasites belonging to the sporozoa. The most different structures in the cells, and in general any structures which assume the appearance of a foreign body in the protoplasm, whatever their morphology, have been considered as parasites. Many of the bodies described in the cells have some similarity to known forms of unicellular organisms, others not the least. Most authors have regarded these parasites as the direct cause of carcinoma. By others they have been regarded as only accidentally present. Not only these structures within the cells, but objects lying between the cells or at various places in the tissue, as the molluscum bodies in molluscum contagiosum, have been described as parasites.

Further interest has been given the matter by the discovery of parasitic unicellular organisms in the blood of man in malaria, and in the blood and tissues of birds and animals in a variety of conditions. There may be various explanations given of many of these structures in the tumor-cells which have been supposed to be parasites. Even when no explanation of their presence can be given, it is not rational to assume from this that they must be parasites. More or less isolated structures in the protoplasm of cells may be explained in a number of ways. Leucocytes may enter into the cell, degenerate, and finally lie as foreign bodies in a cavity within the protoplasm. One tumor-cell may become enclosed in the body of another in the process of growth, or one cell may lie in a depression in another cell and then appear as a foreign body, if the section passes through the enclosing cell. A portion of the protoplasm of the cell may be degenerated and become separated from the remainder of the protoplasm. In many of the rapidly growing epithelial cells of carcinoma there are abnormal processes of nuclear division, and particles of the chromatin may become separated from the nuclei and enclosed in the protoplasm. Even the nuclei of cells may degenerate and take on an appearance very different from the normal nucleus. Entire cells may degenerate, and in this condition they may stain in a peculiar way. There is no doubt that structures are formed in all these ways, and in some cases even normal constituents of the cells have been described as parasites. These supposed parasites have been found in other tissues than the tumors.

The least that can be demanded of those holding the parasitic theory of carcinoma is that parasites must be shown to be always present and to stand in some relation to the pathological processes. The complete demonstration by growth of the parasites outside of the body and innoculation with these alone, can hardly be given. The life history of but few of the protozoa is known, even when the most favorable conditions for their study are present.

From a general consideration of carcinoma there is much which speaks for, and very much against the parasitic theory. Many pathological processes which produce more or less well-defined tumors are known to be caused by parasites. All these formations have much the same character. They usually arise in the connective tissue, and the cells of which they are composed are derivatives of cells belonging to it. They never represent a complicated structure such as we have in carcinoma. There is at first sight some analogy between carcinoma and tubercle, especially in the matter of metastases. In both we have a primary focus, and from this primary focus a material is given off which is carried to other parts of the body and produces a similar growth. There is, however, in the metastases, an enormous difference between the two. No matter what the primary seat of the tubercle, the secondary tubercles are in no way influenced by this. They have the same character under any circumstances. In the case of carcinoma, the secondary nodules are of the same character as the primary nodules. The metastases coming from an adeno-carcinoma of the stomach will present the same typical arrangement of the epithelium as the primary tumor shows, whether they are produced in the lung, muscles, in the liver or elsewhere.

The structure of the primary nodule, moreover, depends upon the character of the epithelium from which it arises. A primary carcinoma of the liver will always present an entirely different structure from a carcinoma arising from the alimentary canal. It proceeds from the epithelium of a part, and in its structure the cells conform more or less to the character and arrangement of the primary epithelium. There is no way of escaping from this fact. Before the development of the parasitic idea it was very generally accepted that the metastases are due to cells of the primary growth, because only from the cells could the more or less complicated structures of the primary

growth be repeated. In the case of tubercle it is different. The metastases there are produced by the bacilli, and the secondary nodule is always of the same structure whatever the seat of the primary. Some of the articles on the parasitic nature of carcinoma are even absurd. The idea has even been advanced that the cells of the tumor itself are parasites. In accordance with this idea a carcinoma arising from the stomach must be produced by a parasite similar in structure to the epithelium of the gastric glands, or in a carcinoma of the liver it must resemble the liver cells, or in a carcinoma from the skin it must have the property of transforming itself into horny epithelium.

A comparison of carcinoma with the tumor-like formations in animals known to be produced by coccidia, as the nodules in the liver of a rabbit, is not justifiable. These formations are simply the result of a hyperplastic growth of the epithelium lining the bile ducts in the form of papillary projections into the dilated vessels. There is no doubt that these growths are produced by the coccidia, and there is no reason why they should not be. If we had metastases from these nodules, if we could have similar tumors with a similar structure formed in the lung from metastases of the coccidia from the liver, the case would be different.

Up to the present time no theory has been advanced which will fully explain the etiology of carcinoma. A theory has recently been advanced by Ribbert that the carcinoma is due to a proliferation of the connective tissue in the vicinity of epithelial growths which penetrates the epithelial tissue. The epithelial cells become loosened from their continuity with one another, and then find favorable opportunity for an unlimited growth in the altered connective tissue. This theory rests on no surer foundation than do any of the others. Probably the theory of Cohnheim, that the carcinoma is due to an embryonic predisposition of the tissues, or to the retention of the embryonic character of the cells in certain places consisting in a power of unlimited growth, still remains the most plausible one.

## THE BILL FOR THE REORGANIZATION OF THE *PERSONNEL* OF THE NAVY.

A BILL with the above title is now before Congress. The efficiency of the navy is to be increased by increasing the number of rear admirals by ten in addition to those at present holding that position, making sixteen; and providing 234 commanding officers for about fifty vessels now in commission. This would undoubtedly be an excellent thing for the officers of the line, providing rapid advancement, and ensuring almost a certainty to those who continued in the service for any length of time of retiring on admiral's half-pay. How the efficiency of the navy would be increased by providing it with so many commanding officers, three-fourths of whom would necessarily be idle at any given time, the bill does not explain. The expense of their support is, however, admitted to be a serious consideration; and how does the bill propose to meet it? By reducing the pay and rank of the staff officers, that is, the surgeons, engineers and paymasters, and at the same time lengthening the time which they are obliged to serve before rank and pay can be increased. The responsibility of the medical and engineer corps of the navy is certainly a great one, and yet the inducements now offered to surgeons proposing to enter the navy are so small that competent men are secured with great difficulty, and the corps has not had its complement since 1865. As the Brooklyn *Eagle* forcibly puts it, "Every diminution in inducement means a lowering of the standard for admission, and under the inducements offered by this bill the standard will necessarily have to be placed so low that the lives of officers and men will be placed in the hands of incompetent persons."

The bill proposes that an assistant surgeon shall enter the navy, with the rank of ensign (corresponding to second lieutenant in the army), and the salary of $1,200 a year. In the army assistant engineers get $1,600 a year, and the rank of first lieutenant. In the navy promotion will be slower. Do the framers of this bill suppose that even men of average ability will enter the navy, and suffer the hardships of life at sea, for $1,200 a year and slow promotion — the highest possible shore duty pay ever attainable, and that after years of service being $3,500 a year? Even the most moderate success in civil life is preferable to such a condition and prospects. The result of the adoption of this bill would certainly mean that only those incapable of taking care of themselves in the struggle for existence on shore would enter the navy, — that is, the incompetent and inefficient. Competent men could not be found to serve under such conditions.

From another point of view the case is well presented by the Brooklyn *Eagle:*

"It has been shown that this bill provides 234 commanding officers for about fifty ships of war. No ship can have more than one commanding officer, but many must have more than one doctor and one engineer. A ship having a complement of 300, 400 or 500 men goes into battle with one commanding officer. If he falls, the next line officer takes his place. It would be inhuman and absurd to send such a vessel to sea in peace or war with one surgeon or one engineer. Even in peace the sickness or death of such men would find no one to take their place. Epidemics on board at sea would find men dying for want of assistance. In war a recent experience has shown how many wounded a few minutes' fight at sea produces. Can one surgeon give the necessary aid? Why, everybody knows that many common surgical operations are never undertaken without several assistants. Can one surgeon do what humanity requires? And suppose the surgeon falls in battle, who is to take his place? No one can, if he is acting alone. It is absurd to say that he cannot fall in battle, that he is down below, safe from shot and shell. In the recent naval battle between the Japanese and Chinese the former lost ten commissioned officers, killed outright, and two of these were doctors – twenty per cent. It is absurd to call any man a non-combatant in these days on a ship of war. . . . Two hundred and thirty-four line officers to command fifty or sixty ships with one commanding officer to each ship! How many doctors? One hundred and sixty-five (Sec. 25), when two or more are required on many ships and the hospitals on shore require staffs. How many engineers?

One hundred and ninety (Sec. 38), when several are required on nearly every ship. How many paymasters? Ninety-six (Sec. 33), for all purposes. Does not this comparison show the line strength in this bill, in which in spite of a number of commanding officers now that cannot be utilized there is an increase of thirty, nearly as many as there are ships, and the medical corps is reduced five numbers — from 170 to 165? Two hundred and thirty-four commanding officers and 165 doctors, 190 engineers and 96 paymasters. Is not this an absurdity?"

From every point of view it is evident that Congress cannot improve the pay and position of the line officer at the expense of the staff without injustice. The bill is rather calculated to decrease than to increase the efficiency of the *personnel* of the navy.

## MEDICAL NOTES.

ACTINOMYCOSIS OF THE LUNGS SIMULATING PHTHISIS.— M. Berard presented to the Society of the Medical Sciences at Lyons, a communication with regard to a case of severe actinomycosis of the lungs simulating advanced phthisis. The diagnosis was made by the examination of the sputum.

A MONUMENT TO HELMHOLTZ. — At the suggestion of the German Emperor, a monument to von Helmholtz is to be erected in Berlin, probably in a public square near the University Buildings. The emperor has promised a contribution of 10,000 marks toward the expense.

A PROFESSORSHIP OF DISEASES OF CHILDREN. — Dr. Otto Heubner, director of the Clinic for Diseases of Children at the Charité in Berlin, has been made a Professor of Children's Diseases. Heretofore diseases of children have been regarded as a side issue at the University of Berlin, and Henoch, the illustrious predecessor of Heubner, was merely an honorary professor.

URINE AS AN AGENT OF ANARCHY.— In a memoir published in the *Révue de Chimie Industrielle*, M. Ackerman points out the use which may be made of urine in the manufacture of explosives. Cyanuric acid which is derived from urine is in fact an isomere of fulminuric acid $C_3H_3N_3O_3$, which is itself a derivative of fulminuric acid, the formula of which is $C_2H_2N_2O_2$. The author of the Latin doggerel beginning "*mingere cum bombis*" probably did not realize the possible direful meaning of his line. Perhaps he would have substituted some other adjective in the second line, so that it should read perhaps instead of "*res saluberrima lumbis*," *res pessima lumbis*.

FURTHER REPORT ON ANTITOXIN. — Soltmann reports (in *Deutsche med. Woch.*, January 24, 1895) 193 cases of diphtheria treated at the Leipzic Children's Hospital between April 1 and December 31, 1894. Of these 50, or 27 per cent. died. During the first four months in which the serum treatment was not generally used, 28 out of 71 children died, or 39.8 per cent.; in the last five months, during which the majority of the children received the serum treatment, 22 out of 122 children died, or 18 per cent. Of this last group of cases 9 out of 33, or 27.2 per cent., not treated with serum died, and 13 out of 89, or 14.6 per cent., of those receiving the serum treatment.

SENATOR GALLINGER ON ANTITOXIN. — The United States Senate has included in an amendment to the Appropriation Bill a sum of $20,000 for a bacteriological laboratory and disinfecting service for the District of Columbia, and for the distribution of antitoxin in the district. Senator Gallinger, of New Hampshire, who is himself a physician, (of the homeopathic school), took occasion to make a speech in which he ridiculed medicine as "the science of guessing." The honorable senator and learned physician then went on to ridicule antitoxin, and say that he soon expected to see it relegated to the tomb of medical discoveries that have been declared worthless if not absolutely harmful. Strange that such ridicule coming from a man who is a United States Senator and at the same time a physician should not have been sufficient to kill the amendment. His words can hardly have had the weight that their author's distinction should carry with them!

A CALL FOR A COLLECTION OF STATISTICS ON SERUM THERAPY IN DIPHTHERIA.— Realizing the importance to our knowledge of serum therapy in diphtheria of the tabulation of a very large number of cases, treated under all possible conditions, as to hospital and private practice, the mildness or severity of epidemics, etc., and the fact that the observations heretofore published have each of them a certain local limitation, and relate to a rather limited number of cases; the editors of the *Deutsche medicinische Wochenschrift* have inaugurated a plan for the collection of statistics on a large scale, embracing the entire German empire. The plan is similar to that which has been successfully employed several times by the *British Medical Journal* for the collection of statistics on important questions. Blank forms have been sent to all the physicians in the German empire, each physician being requested to fill them out and return them to the editors. In this manner the editors hope to be able to collect the results of all cases of diphtheria treated by antitoxin between the present time and April 1, 1895. In this undertaking the editors have the support of such men as Leyden, Litten, Renvers, Heubner, Behring, Ehrlich and Guttstadt. The editors expressly state that they expect from this statistical investigation no definite settlement of the antitoxin question, but hope from the tabulation of the material collected, to give physicians a firmer foundation on which to base their therapeutic use of the antitoxin, and at least temporarily to solve their doubts as to its value.

PERSISTENCE OF THE DIPHTHERIA BACILLUS IN THE THROAT FOR SEVEN AND A HALF MONTHS.— Schäfer, in the *British Medical Journal* of January 12th, reports the case of a boy who had an attack of "tonsillitis" early in last May, which was recognized to be diphtheritic on the occurrence of characteristic paralyses, two months later. Seven and a half months

later two other boys in the same school, one of whom slept in the same dormitory, and the other of whom shared a desk with the May case, came down with diphtheria. A sample of mucus from the throat of the May case was sent for examination along with the others, and was found to contain numerous colonies of typical Löffler bacilli, which on inoculation into animals proved to be active. This is the first instance reported of the persistence of virulent bacilli for so long a period.

Rupture of the Spleen during Coitus. — Harrison gives, in the last number of the *Bristol Medico-Chirurgical Journal*, an account of the autopsy on a lion at the Clifton Zoölogical Gardens. The lion, a fine specimen of his kind, and previously considered perfectly healthy, was found dead in his cage one morning. The autopsy showed an enormous intra-abdominal hemorrhage from rupture of the spleen, which was thought to be undoubtedly due to the exertion of coitus, which had taken place the evening before. The spleen was much enlarged, weighing 21½ pounds, the enlargement, according to Dr. Harrison, being due to increase in the lymphatic and vascular elements. The animal was sick a short time two months before his death, but the symptoms pointed to the thorax. As the death occurred in 1878, before much attention had been called to the value of examination of the blood in these cases, no such examination was made.

Gastrostomy for Foreign Bodies. — At a recent meeting of the Leeds and West Riding Medico-Chirurgical Society Mr. Mayo Robson read an interesting paper upon a remarkable case of foreign bodies removed from the stomach of a child by gastrostomy. The patient was ten years of age, and had been admitted into the hospital for gastric symptoms which were not of a very definite nature. For eight months the symptoms had persisted without yielding to any treatment. However, while under observation in the hospital the patient vomited a nail. It was then decided to open the stomach, and as a result of the operation the following curious collection of heterogeneous objects were removed: 47 cast-iron garden nails, 1⅝ inches long; 93 brass and tin tacks, ½ inch to 1 inch long; 12 large nails, some brass-headed; 3 collar studs, 1 safety pin, 1 sewing needle. All these, of course, had during the previous eight months been swallowed by the child. The operation wound healed by first intention, the patient making a complete recovery.

Bacilli Tuberculosis in Cigars. — Dr. Kerez (*Centralblatt für Bacteriologie*) reports the result of experiments which he has been making for the purpose of determining the possibility of the communication of tuberculosis through the medium of cigars. It is a well-known fact that cigar-makers are in the habit of making the leaves adh ere to the cigars by moistening them with saliva from their own mouths. The force of habit leads them to continue this practice, although in recent times manufacturers provide their workmen with materials for the purpose indicated. Dr. Kerez made cigars by moistening the leaves with saliva known to contain tubercle bacilli. The cigars were then dried and packed away in boxes in the usual manner. It was found afterward, when the cigars were unrolled and the leaves washed in water, that the infusion thus obtained, having been injected into guinea-pigs produced tuberculosis, clearly showing that cigars may thus be the means of communicating tubercle bacilli and giving rise to pulmonary disease. — *La Médecine Moderne.*

## NEW YORK.

Death-Rate of New York City. — During the week ending February 2d, there were reported 952 deaths in the city, an increase of 19 over the preceding week. There were 203 deaths from pneumonia, 71 from influenza, and 33 from diphtheria.

Bequests for the Home for Incurables. — The Home for Incurables, which is situated at Third Avenue and 184th Street, has recently received two bequests, one of $70,000 and one of $10,000, and the money is to be devoted to the erection of a large new wing to the hospital.

Electrical Execution. — In the case of the negro murderer, David Hampton, who was executed by electricity at Sing Sing prison on January 28th, the autopsy showed considerable ruptures of the cerebral arteries as a result of the current. Any attempt at resuscitation in this instance at least would therefore have proved fruitless.

Damages for Death by Accident. — Under the old Constitution of the State the limit for damages recoverable for death by accident was placed at $5,000, but under the amended Constitution there is no limit to such damages. On January 30th $18,000 was awarded by a jury to the widow of Terence C. O'Reilly for the death of her husband, who was killed by a mail wagon; this being the first case of the kind since the new Constitution went into effect.

Death of Dr. Ostrander. — Dr. Ferdinand W. Ostrander, who had the reputation of being the oldest practising physician in Brooklyn, died at his residence in that city on January 30th. He was born in New York on June 4, 1804, and at the age of twenty-three was graduated from the College of Physicians and Surgeons. For the past ten years the greater part of his practice has devolved upon his son, Dr. John W. Ostrander. All his professional career was spent in the city of Brooklyn, and he was at one time health officer there.

Prevalence of Pneumonia. — Pneumonia continues to be very prevalent and fatal, a large proportion of the cases no doubt resulting as a sequence of influenza. During the week ending January 26th, out of a total mortality of 933 in the city, no less than 199 were due to this disease. In a recent report Dr. John T. Nagle, Registrar of Vital Records, in pointing out the increase of pneumonia during the last four years, states that in the year 1830, when there were 5,498

deaths in the city, only 228, or 1 in 22.8 were due to this cause; while in 1893, when the deaths numbered 44,486, 6,487, or 1 in 6.86, were from pneumonia.

THE NEW YORK COUNTY MEDICAL ASSOCIATION. — At the recent annual meeting of the New York County Medical Association, Dr. S. B. W. McLeod was re-elected President, Dr. A. D. Ruggles, Vice-President, Dr. P. Brynberg Porter, Recording Secretary, and Dr. John H. Hinton, Treasurer. Dr. N. G. Bozeman was elected Corresponding and Statistical Secretary, and Dr. Thomas H. Burchard, member of the Executive Committee. The report of the Statistical Secretary showed that during the year 105 new members had been elected and that there were now upon the roll of the Association 1,006 active members.

DR. A. L. LOOMIS'S WILL. — By the will of the late Dr. Alfred L. Loomis the income of $25,000 is given to the Loomis Laboratory, and whatever part of the income is not used is to be paid to the professor of pathology and practice of medicine in the University Medical School. To the New York Academy of Medicine is left $10,000, the bequest to be known as the Loomis Entertainment Fund, and the interest to be used in providing entertainment for the Fellows of the Academy. His medical library is left to his son, Dr. H. P. Loomis. The total value of the real estate is placed at $400,000 and of the personal property at about $600,000.

## Miscellany.

### CREDIT SIDE OF THE CHOLERA ACCOUNT.[1]

A REDUCTION of more than fifteen per cent. in the general death-rate is, grossly stated, the claim made for the sanitary administration of Great Britain initiated by Sir John Simon in 1865, when he undertook the defence of that country against Asiatic cholera. Abandoning *in toto* the system of defence by quarantine restrictions, as against that individual disease, a vast machinery of notification, isolation and disinfection with reference to the infectious and contagious diseases generally, has been organized, the efficiency of which may be measured, with substantial accuracy, by the statistics of one group of diseases — the typhoid or enteric and other continued fevers. Thorne-Thorne has recently shown that, whereas the mean annual death-rate of this group was 567 per million living in the five years 1869–73, it was only 179 in the five years 1888–92; that if, during this latter quinquennium, people had died of these fevers at the rate at which they died in the former five-year period, there would have been during 1888–92 no fewer than 55,808 more deaths than actually occurred; and that had the same mortality obtained in 1892 that prevailed in 1869 no less than 14,232 persons who, at the end of 1892, had escaped death from these causes, would have died during that year. "In short," he says, "even if cholera had recurred in England and Wales between 1867 and 1892 — a period during which that disease was practically absent from our midst — on the same scale as between 1849 and 1866, we should still be the gainer by several hundreds of thousands of human lives. And our gain in this respect is largely due to the incentive given by reason of cholera prospects and of the knowledge that the disease would have to be met by improved sanitary administration."

### CONGENITAL PHIMOSIS.

THE following account of a case of congenital phimosis appears in a recent number of the *Southern Practitioner* (October, 1894): "It is remarkable," says the writer, "for the length of time the patient has been subjected to symptomatic medication without regard to the obvious cause of the trouble." It is equally interesting for the secondary effect of the phimosis upon the *lingua* of the writer.

J. H. W., age nineteen, a machinist by occupation, sought advice in relation to his *vita sexualis*, August 4, 1894. Examination revealed an extreme degree of phimosis, the foreskin being long, redundant, and flabby, with a hair-like orifice at the extremity. The integument being involuted, passed back an inch or more, when it joined the mucous membrane in such a manner as to form a complete *cul-de-sac* of considerable dimensions. Into this *plica abnormalis* the patient passed his urine, it having a sufficient capacity to hold the entire quantity of urine voided at one time. After urinating the patient had to milk or squeeze the urine out of the *cul de-sac* with his fingers, so small was the orifice.

Urine could be passed when the bowels acted only. The general health had never been good, and the patient complained of many functional disorders, such as palpitation of the heart, constipation, indigestion, nervousness, insomnia, vertigo, night emissions, erotic dreams of men, great exhaustion, lack of energy, anemia, insufficient self-confidence, both mentally and morally, and perverse sexual instinct.

We quote *verbatim et literatim* the remainder of the history:

"Patient attempted coitus once two years ago with a *puellæ publica*, but did not have *immissio penem* in vagina, and becoming disgusted with *femmes*, never repeated the attempt, but practised mental onanism occasionally by imagining the *cul-de-sac terminalis* to be a vagina in *puellæ pulchra*, had ejaculation in from two to five minutes, the semen lodging in the *plica abnormalis*, and squeezed out through the small opening per *manum* subsequently. In his dreams he always played the role of *femina*, and *vice versa* when awake. His *libido* had been intense as far back as he could remember. Diurnal involuntary erections occurred repeatedly, but not followed by ejaculation unless he thought of *puellæ pulchra*."

A circumcision resulted in a complete restoration to health and to the vernacular.

### STEAM AS A HEMOSTATIC.

PROF. W. F. SNEGIREW,[2] of Moscow, reports the successful use of steam for hemostatic purposes in several cases where other means have been unsuccess-

[1] Journal of the American Medical Association.
[2] Deutsche med. Woch., No. 38, 1894.

ful or inconvenient. His attention was first called to the possibility of using steam as a general hemostatic, as the result of a severe hemorrhage occurring during an operation on the liver. On reading the literature of hepatic hemorrhage he was impressed, he says, by the general helplessness of the surgeon in such cases. "Even the actual cautery was not always sufficient, and in most cases required the additional aid of a closely placed tamponade of gauze."

For some time Professor Snegirew had been in the habit of using steam as a cauterizing and hemostatic agent in the treatment of uterine disease, in the following manner: After dilating the uterine canal an application of steam was made through a small metal tube enclosed in a catheter. After a half or at most a full minute of this application, a dark fluid, with a strong brothy odor, returns through the catheter. In his experience there has been no pain attending this application and many cases of tender, painful, bleeding conditions of the uterine mucosa have been entirely relieved.

Carrying out the suggestion from this use of steam he conducted a series of experiments with Dr. Blagowolin, to determine the hemostatic value of steam upon the liver and other organs. Their results in animals were as follows:

(1) They were enabled to remove without loss of blood such sized pieces of the liver as they chose, the animal surviving.

(2) Similar results were obtained on the spleen.

(3) They removed entire lobes of the lung without hemorrhage.

(4) Considerable sized pieces of kidney were successfully removed.

(5) From the brain, excision of pieces up to a limited size.

(6) Bleeding from the spongy portions of bones was stopped.

(7) The marrow was scalded, but the restoration of the bone went on as usual.

(8) The femoral artery of a dog, cut through either across its course or lengthwise, did not bleed under the application of steam.

(9) The wounds after the use of steam healed by primary intention in animals, and also in men upon whom it was used.

As the result of these experiments, steam was used as a hemostatic during the past summer in the Alexiner Semstwo Hospital with success in the following operations:

(1) In five cases of resection of the knee-joint, without elastic bands, ligatures or artery forceps.

(2) In the extirpation of a cancerous breast, under the same conditions as above; also in the removal of fatty and malignant new growths in the skin.

(3) In amputation of the cervix uteri and in fibromyotomy.

(4) In resection of bone and in removing sequestra.

(5) In abscesses, to render them odorless and induce rapid healing.

(6) In fistulæ and sinuses, especially when tubercular.

There seems little doubt in the minds of the investigators that in steam they have found a hemostatic of ready usefulness, aseptic, not interfering with primary union, and above all applicable to parenchymatous organs, such as the liver. Certainly further reports will be eagerly awaited.

## THERAPEUTIC NOTES.

For the Vomiting of Pregnancy. — The following is from the *Practitioner*:

℞ Menthol . . . . . gr. xl
Olei Amygdalæ . . . . . ʒ iij
Solve. Six to ten drops on a lump of sugar.

The Treatment of Diphtheritic Laryngeal Stenosis. — Brenner Berent[1] has in two cases seen remarkably good results follow painting with cantharidal collodion of a spot the size of a half-dollar over the thyroid cartilage.

Sterilization of Knives for Surgical Purposes. — In the *Archiv. für klinische Chirurgie* (48, 4, Berlin, 1894), Ible states that knives can be rendered aseptic by boiling in one-per-cent. soda solution, without affecting in any way the sharpness of the edge. The manner in which this dulling ordinarily takes place is that the edges are dulled against the sides of the boiler or the other instruments. He proposes a small knife case to be boiled with the instruments. As soda crystals consist of 75 per cent. of water of crystallization, it is necessary in order to obtain a one-per-cent. solution to employ at least three tablespoonfuls to the half litre of water.

[1] Therap. Monatshefte, September 9, 1894.

## RECORD OF MORTALITY

For the Week ending Saturday, January 26, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,956,000 | 933 | 288 | 8.47 | 27.61 | .85 | 4.29 | 1.21 |
| Chicago | 1,800,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,136,437 | 488 | 155 | 14.07 | 18.06 | 3.15 | 8.61 | .42 |
| Brooklyn | 1,043,000 | 496 | 157 | 7.80 | 25.40 | .40 | 5.40 | .60 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,167 | 220 | 77 | 13.05 | 23.85 | 1.35 | 7.20 | .90 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 325,000 | 89 | 21 | 6.72 | 15.68 | — | 1.12 | — |
| Cincinnati | 325,000 | 115 | 38 | 4.35 | 24.36 | — | 1.14 | 1.74 |
| Cleveland | 325,000 | 101 | 34 | 12.87 | — | .99 | .99 | 9.02 |
| Pittsburg | 272,000 | 109 | 38 | 14.72 | 19.32 | 5.52 | 6.44 | 1.84 |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 33 | 7 | 9.09 | 15.15 | 3.03 | — | 6.06 |
| Charleston | 65,185 | — | — | — | — | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 30 | 15 | 26.66 | 13.33 | 3.33 | 16.66 | — |
| Fall River | 92,233 | 25 | 12 | 4.00 | 44.00 | — | 4.00 | — |
| Lowell | 80,613 | 29 | 7 | — | 17.25 | — | — | — |
| Cambridge | 79,607 | 34 | 12 | 8.82 | 11.76 | — | 5.88 | 2.94 |
| Lynn | 65,123 | 18 | 5 | — | 5.55 | — | — | — |
| Springfield | 50,284 | 19 | 5 | 5.12 | 10.28 | — | — | — |
| Lawrence | 49,900 | — | — | — | — | — | — | — |
| New Bedford | 47,711 | 20 | 3 | — | 10.00 | — | — | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 8 | 2 | — | 12.50 | — | — | — |
| Salem | 33,155 | 10 | 3 | 10.00 | 20.00 | — | — | 10.00 |
| Haverhill | 32,925 | 13 | 4 | 9.76 | — | — | — | — |
| Malden | 30,299 | — | — | — | — | — | — | — |
| Chelsea | 29,406 | — | — | — | — | — | — | — |
| Fitchburg | 29,303 | 4 | 0 | 25.00 | — | 25.00 | — | — |
| Newton | 28,837 | 10 | 1 | — | 10.00 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 14 | 4 | 14.28 | — | — | 7.14 | — |
| Waltham | 22,958 | 9 | 1 | — | 22.22 | — | — | — |
| Quincy | 19,642 | 9 | 4 | — | 11.11 | — | — | — |
| Pittsfield | 18,892 | 2 | 0 | — | — | — | — | — |
| Everett | 16,585 | 4 | 1 | 25.00 | — | — | — | 25.00 |
| Northampton | 16,331 | 5 | 2 | — | 40.00 | — | — | — |
| Newburyport | 14,073 | 11 | 0 | 9.09 | 18.18 | — | — | — |
| Amesbury | 10,826 | 2 | 1 | — | — | — | — | — |

Deaths reported 2,955: under five years of age 923; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 289, acute lung diseases 619, consumption 345, diphtheria and croup 148, scarlet fever 38, typhoid fever 38, diarrheal diseases 25, whooping-cough 16, cerebro-spinal meningitis 12, measles 11, erysipelas 5, small-pox 1.

From diarrheal diseases New York 7, Philadelphia 4, Boston 3, Brookline 2, Cincinnati, Lynn, Springfield and Taunton 1 each. From whooping-cough New York 4, Brooklyn 3, Philadelphia, Boston and Washington 1 each. From cerebro-spinal meningitis New York 4, Washington 3, Cleveland and Lynn 2 each, Worcester 1. From measles New York 4, Philadelphia and Boston 2 each, Brooklyn, Worcester and Haverhill 1 each. From erysipelas New York 2, Philadelphia, Brooklyn and Boston 1 each. From small-pox New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending January 19th, the death-rate was 21.7. Deaths reported 4,407: acute diseases of the respiratory organs (London) 399, measles 96, whooping-cough 66, diphtheria 63, diarrhea 49, fever 36, scarlet fever 25, small-pox (Birmingham 2, London 1) 3.

The death-rates ranged from 12.9 in Plymouth to 33.4 in Wolverhampton; Birmingham 27.9, Bolton 29 3, Bristol 21.9, Burkley 26.2, Huddersfield 22.0, Leeds 24.9, Leicester 15.1, Liverpool 28.3, London 20.0, Manchester 23.3, Newcastle-on-Tyne 21.2, Nottingham 22.9, Portsmouth 20.6, Sheffield 22.7, Sunderland 30.7, Swansea 21.0, West Ham 18.4.

## METEOROLOGICAL RECORD,

For the week ending January 26th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | Direction of wind. | | Velocity of wind. | | W'th'r.* | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..20 | 30.22 | 24 | 33 | 15 | 52 | 58 | 55 | W. | W. | 12 | 10 | F. | C. | |
| M..21 | 29.87 | 33 | 42 | 24 | 67 | 100 | 84 | S. | E. | 4 | 14 | O. | R. | .04 |
| T..22 | 29.40 | 42 | 48 | 35 | 94 | 52 | 73 | W. | W. | 8 | 23 | O. | O. | .18 |
| W..23 | 29.61 | 28 | 32 | 24 | 53 | 67 | 60 | W. | W. | 10 | 12 | C. | C. | |
| T..24 | 29.88 | 21 | 26 | 16 | 51 | 50 | 50 | W. | W. | 14 | 12 | C. | C. | |
| F..25 | 30.25 | 22 | 30 | 15 | 46 | 59 | 52 | W. | W. | 12 | 5 | C. | C. | |
| S...26 | 29.52 | 39 | 53 | 25 | 97 | 72 | 84 | W. | W. | 36 | 17 | R. | O. | 1.06 |
| ☞ | | | | | | | | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 26, 1895, TO FEBRUARY 1, 1895.

The extension of leave of absence on account of sickness, granted FIRST-LIEUT. HENRY R. STILES, assistant surgeon, is still further extended two months on surgeon's certificate of disability.

## OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDING JANUARY 31, 1895.

AUSTIN, H. W., surgeon. To proceed to New Bedford, Mass., as inspector. January 18, 1895.

## HARVARD MEDICAL SCHOOL.

### EVENING LECTURES.

The next lecture will be given on Thursday evening, February 14th, at 8 o'clock, by Asst. Prof. M. H. Richardson. Subject, "The Operative Surgery and Prognosis of Mammary Cancer." Physicians are cordially invited.

## RECENT DEATH.

LEVI PILLSBURY, M.D., M.M.S.S., died in Fitchburg, February 4, 1895, aged seventy-seven years.

## BOOKS AND PAMPHLETS RECEIVED.

Electro-Therapeutics in the Practice of Dermatology. By Richard B. Faulkner, M.D., Alleghany, Pa. Reprint. 1894.

Astigmatism as a Factor in the Causation of Myopia. By Leartus Connor, A.M., M.D., Detroit, Mich. Reprint. 1895.

Intraligamentous and Retroperitoneal Tumors of the Uterus and its Adnexa. By William H. Wathen, A.M., M.D. Reprint. 1894.

Modern Homeopathy, Its Absurdities and Inconsistencies. By William W. Browning, A.B., LL.B., M.D., Brooklyn, N. Y. Reprint. 1894.

The Code Question from the Standpoint of a General Practitioner. By D. A. Robinson, M.D., of Bangor. Portland: Stephen Berry. 1894.

Thirty-ninth Annual Report of the Trustees of the Northampton Lunatic Asylum for the year ending September 30, 1894. Boston: Printed by the State. 1895.

The Relation of Static Disturbances of the Abdominal Viscera to Displacements of the Pelvic Organs. By J. H Kellogg, M.D., Battle Creek, Mich. Reprint. 1894.

A Surgical Kit Containing all the Essentials for Aseptic Operations at Private Residences. By Reuben Peterson, M.D., Grand Rapids, Mich. Reprint. 1894.

Ligation of the Internal Jugular Vein for Profuse Hemorrhage caused by a Sloughing Adenitis, which followed Malignant Scarlet Fever. By Lewis H. Adler, Jr., M.D. Reprint. 1891.

Ueber eine Färbemethode, mit der man Diabetes und Glycosurie aus dem Blute diagnosticiren kann. Von Dr. Ludwig Bremer, St. Louis, Mo. Sonder-Abdr. a. d. Centralblatt f. d. med. Wissenschaften, 1894, No. 49.

Hygiene of the Eye. Evisceration of the Eye-Ball. Immediate Capsulotomy following the Removal of Cataract. An Introductory Address to the Students of the Medico-Chirurgical College. By L. Webster Fox, M.D., Philadelphia. Reprints. 1894.

Las Inflamaciones Pelvianas de la Mujer y su Tratiamiento Racional segun la Clinica. (Comunicacion al XI Congreso Internacional de Medicina, Roma, 29 de Marzo, 1894.) Por el Dr. D. Celestino Martin de Argenta, Director de una Clinica ginecologica y Profesor libre de Ginecologica a Salamanca. Madrid. 1894.

Ueber Tubarschwangerschaft und die Behandlung der Blutungen in die Bauchhöhle infolge von Tubarschwangerschaft. Ueber die Behandlung der Placenta Prævia mittels intrauteriner Kolpeuryse. Ueber eine neue Heilmethode der Harnleiterscheidenfisteln nebst Bemerkungen über die Heilung der übrigen Harnleiterfisteln. Von A. Dührssen, Berlin. Reprints. Leipzig. 1894.

Syllabus of Gynecology based on the American Textbook of Gynecology. By J. W. Long, M.D., Richmond, Professor of Gynecology and Pediatrics in the Medical College of Virginia; Gynecologist to the Hospital of the Medical College of Virginia, etc.; Fellow of the American Association of Obstetricians and Gynecologists; Fellow of the Southern Surgical and Gynecological Association, etc. Philadelphia: W. B. Saunders. 1895.

The Theory and Practice of Medicine. By Fredrick T. Roberts, M.D., B.Sc., F.R.C.P., Fellow of University College; Professor of Materia Medica and Therapeutics and of Clinical Medicine at University College; Physician to University College Hospital; Consulting Physician to Brompton Hospital for Consumption and Diseases of the Chest; Late Examiner in Medicine at the University of London and for the Conjoint Board; Vice-president of the Medical Society of London, etc. Ninth edition. Philadelphia: P. Blakiston, Son & Co. 1894.

Notes on the Newer Remedies, Their Therapeutic Applications and Modes of Administration. By David Cerna, M.D., Ph.D., Demonstrator of Physiology and Lecturer on the History of Medicine in the Medical Department of the University of Texas; formerly Assistant in Physiology; Demonstrator of and Lecturer on Experimental Therapeutics in the University of Pennsylvania; Fellow of the College of Physicians of Philadelphia; Member of the Philadelphia Pathological Society, etc. Second edition, enlarged and revised. Philadelphia: W. B. Saunders. 1895.

Uber Heilerfolge von Bädern bei Frauenkrankheiten. Vortrag auf dem Balneologenkongress. Kaiserschnitt, tiefe Cervixincisionen und mechanische Dilatation des Muttermundes. Ueber den Werth der tiefen Cervix- und Scheidendamm-Einschnitte in der Geburtshülfe. Ueber die Behandlung der Blutungen nach der Geburt. Ueber die operative Heilung der mobilen und fixirten Retroflexio uteri auf vaginalem Wege mit besonderer Berücksichtigung der Dauererfolge. Ueber eine neue Methode der Laparotomie (vaginale Coeliotomie). Von A. Dührssen, Berlin. Reprints. Berlin.

A Manual of Organic Materia Medica and Pharmacognosy, an Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Drugs, Comprising the Botanical and Physical Characteristics, Source, Constituents and Pharmacoporial Preparations, with Chapters on Synthetic Organic Remedies, Insects Injurious to Drugs, and Pharmacal Botany. By Lucius E. Sayre, Dean of the School of Pharmacy; Professor of Materia Medica and Pharmacy in the University of Kansas; Member of the Committee of Revision of the U. S. Pharmacopœia. With 543 illustrations, the majority of which are from original drawings. Philadelphia: P. Blakiston, Son & Co. 1895.

# Original Articles.

## MEDICAL TREATMENT IN DIPHTHERIA.[1]

BY A. L. MASON, M.D.,
*Visiting Physician, Boston City Hospital.*

In a brief consideration of the medical treatment in diphtheria, which I have attempted at the request of your President, by way of introducing a general discussion on that subject, I will ask your attention to the more serious questions relating to that disease as they have presented themselves clinically in an experience of twenty years, during the latter part of which period my colleagues and myself at the Boston City Hospital have had under our charge annually a very large number of cases, many of them of the worst description.

While the recently proclaimed success of the treatment of diphtheria by the antitoxin may almost render it superfluous further to discuss the plodding methods by which we have so long struggled with this disease, still it may not be unprofitable to defer an opinion as to the rôle in therapeutics which this great discovery is destined to play, and by a study of past results to form an estimate of the many dangers which this new agent will be expected to overcome.

From 1880 to 1889, 1,300 cases of diphtheria entered the hospital; and in more recent years the admissions have been 300 or 400 annually. About one-third have required tracheotomy or intubation, and the great mortality in cases of respiratory obstruction is practically uninfluenced by any medical treatment hitherto at our command. Exclusive of those cases which have needed surgical interference, the death-rate in those requiring medical treatment alone has been 25 per cent.; nearly double that rate, however, for the whole series.

Without entering into the details which explain the terrible fatality of diphtheria in all communities where it is endemic, as during the last fifty years it has become in most of the large cities of Northern Europe and America, it may be said in brief that the disease often makes fatal headway before its character is recognized; and that the absence of coöperation on the part of most of the subjects, owing to their tender years, throws special difficulties in the way of successful treatment by the measures heretofore adopted. The simple injection of a fluid will, of course, entirely do away with this latter difficulty.

Passing by the milder forms of tonsillar diphtheria, which get well under almost any treatment, in the severer types, with extensive faucial, nasal or tracheal exudate and glandular swellings, there is a threefold danger to life, namely, through septic exhaustion, tracheal obstruction, and the various complications and sequels, of which the most serious are broncho-pneumonia, acute nephritis and toxic paralysis. Dysphagia may, from the outset, cause grave difficulty in nutrition.

What then are our means of contending with or of averting these conditions? Can we prevent septic absorption or overcome profound sepsis after it has developed? Can we stop the extension of membrane to the larynx, trachea or bronchi? Can we ward off pneumonia, acute nephritis or paralysis? Or can we cure these complications when they arise?

The answer to most of these questions must, in the light of past experience, be negative; and so it will be in the future with regard to many cases coming late to treatment. With a disease sometimes so treacherous and virulent, and at others so mild as to escape notice, it is useless to dogmatize about this or that special therapeutic measure which may, from time to time in a limited number of cases, be attended by favorable results above the average.

Until the present year those physicians whose experience and observation have been the most extensive were unable to claim any great degree of success in contending with the worst types of diphtheria. In spite of the most assiduous efforts, its ravages have remained practically unchecked. Many bad cases, and some which appear almost hopeless, respond to the general and special measures which are adopted, but we have had no confidence in such a successful result.

The indications for treatment are clear, and point to such measures as will save and maintain the strength of the patient, with the discriminating use of those local applications which tend to check or neutralize toxic absorption and to prevent invasion of the respiratory tract.

In the maintenance of the strength which so rapidly fails in this disease, not only is the ingestion of a sufficient quantity of easily digested food essential, in a shape which can be best swallowed, but the wasting of the vital forces by too much painful and exhausting treatment must be avoided. Vierordt in his "Medical Diagnosis" says, "In diphtheria immediate death may follow an effort to examine the throat."

Tincture of the chloride of iron, oxygen and alcohol, in large doses, have met with professional approval to correct toxemia and to sustain the flagging heart. They are doubtless serviceable in many cases *not* of the most septic type, but in the latter, absolutely ineffectual. The same is true of strychnia, strophanthus and digitalis. Internal antiseptic drugs have not proved beneficial.

Early difficulty in swallowing may be the result of simple pain or of paralysis. Regurgitation through the nose attends the latter condition, and may occur in the first week. Care must then be exercised in the administration of food and medicines, both on account of the distress which the patient experiences in his efforts at deglutition, and the danger of strangling, or of broncho-pneumonia from the entrance of food into the air-passages, the so-called deglutition-pneumonia. Choking may be fatal as in the following instance reported to the Clinical Society of London by Dr. White last February: A patient with diphtheritic paralysis, while drinking a cup of tea, was seized with cough, spasm and dyspnea. He died, and at the autopsy an ounce and a half of tea was found in the bronchial tubes. There was no other cause for the sudden death.

Nutritive enemata may partially obviate this difficulty in the adult, but they are seldom well retained by young children. Systematic feeding by a soft catheter passed through the nostril into the gullet sometimes saves life. I have seen recovery in the case of a child with complete faucial paralysis who for four weeks could be fed in no other way. Dr. W. A. Morrison, at the Suffolk District Society last year, related several cases successfully treated in this manner.

### LOCAL TREATMENT.

In the use of topical sprays or lotions, it must be asked, Have we any agent on which we can depend to arrest the disease or to prevent the extension of mem-

[1] Read at a meeting of the Boston Society for Medical Improvement, November, 1894.

brane to dangerous localities? It is not improbable that success would oftener attend our efforts in this direction if cases were seen at an earlier stage, but in those which have already become malignant, in which the membrane spreads with great rapidity, nothing at our command has thus far been able to avert septicemia or croup with any degree of certainty whatever.

In the use of local remedies there is great room for choice and for individual judgment as to the mode and frequency of their application. Their effect upon the patient must be carefully observed, the amount of pain which they cause and the degree of fatigue which follows. Great exhaustion not uncommonly ensues in patients whose hearts are already weakened, therefore it is evident that in such cases, especially with young and frightened children, it is best to make the intervals less frequent and to use the milder and less painful cleansing agents. Physicians have recommended an almost constant spraying and swabbing of the nose and fauces, every half-hour, day and night. Such zealous measures, except for very brief periods, exhaust the child and wear out the nurses. Force is objectionable, but its judicious use may be necessary in young subjects. In patients with pallid countenance and feeble pulse, no treatment which obliges them to sit up is permissible. Irrigation with the douche bag can be resorted to in the recumbent position. Sleep, fresh air and an abundance of drinking-water are of the first importance. Plain or medicated steam, so often used for impending croup, is of doubtful benefit and the heat is uncomfortable.

Of the many detergent and antiseptic remedies for cleansing and sterilizing the nose and fauces, I will mention but few, as, one after another, the more powerful and painful agents have been generally abandoned as useless or harmful. Mild carbolized sprays, such as Dobell's, lime-water, warm alkaline solutions, chlorine-water, and peroxide of hydrogen, may be used, the latter in a ten- or fifteen-volume solution, or stronger, once or twice daily for a few days for the removal of membrane. It has a perceptible effect upon the exudate, but is sometimes painful, and I think its prolonged use is more irritating than the other substances mentioned. Its germicidal effect must be considered, and in this respect I have also thought swabbing twice a day with corrosive sublimate, 1 to 5,000 or 10,000, valuable. Mercurial poisoning may occur. This is an objection to the free use of corrosive sublimate inhalations from the steam atomizer. A saturated solution of boracic acid is often used. Cocaine mitigates the pain of local applications.

With these measures we see many bad throats, and a few of the worst clear up and recover, even after a moderate degree of sepsis has developed, and most certainly the employment of active antiseptic measures in a prudent manner, is and always will be a requisite in the management of the throat affection in diphtheria, not only with reference to the Klebs-Löffler bacillus, but also to the streptococci and staphylococci which add so much to the danger. But they do not reach far enough.

The disinfection of the nose is most difficult, both on account of pain, when forcible spraying is resorted to in the swollen and almost impervious condition of the nostrils, and from the inflammation of the frontal sinuses and middle ear caused by too zealous attempts to cleanse the nasal passages by the douche or atomizer. Therefore, I have formed the opinion that, in young children especially, the blandest fluids, at a warm temperature, by the force of their own gravity only, should be used in the nose. Adults may use the warm saline douche, or a very weak solution of peroxide of hydrogen, cautiously.

Again, we may see the throat clear up satisfactorily and the glands subside while the disease is making insidious progress in the windpipe and bronchi. Then the expulsion of a "tree" of ramifying membrane sometimes gives warning of the end, for in such extensive involvement of the bronchial tubes recovery is a rare event.

Broncho-pneumonia and nephritis we cannot prevent, and they occur in a large proportion of cases. The nephritis, being of an acute infectious type, tends to recovery in those cases which survive the general malady, but convalescence is often slow and albuminuria may persist for many months. There is danger of exacerbations from errors of diet, fatigue, or undue exposure.

In a few septic cases there is an uncontrollable hemorrhagic oozing from the mucous membrane of the mouth, nose or pharynx, and rarely petechiæ occur. I have never seen one of these cases recover.

Especial difficulties sometimes arise in the management of diphtheritic paralyses. I have already alluded to the early deglutition symptoms which may complicate bad cases, and in the same way there may be, in the first week, dangerous impairment of the cardiac function, probably pneumogastric in origin, since frequent vomiting is an attendant symptom. No doubt, too, the heart is the seat of septic invasion, which causes degeneration of the myocardium, in most cases of diphtheria. In a series of several hundred cases, a German writer (Hoppe-Seyler) found cardiac symptoms in one-half, and manifest fatty changes at most of the autopsies.

The effect of the diphtheritic toxines, however, in causing paralyses, is not usually a sudden one, but gradual and cumulative, after the active manifestations of the disease have ceased. Different sets of muscles may be invaded in turn according to no apparent rule. It is then that the persistence of a rapid, feeble pulse and a pallid face, excite apprehension of heart failure, and indicate the necessity of absolute repose and the utmost care to avert a fatal issue. A galloping rhythm, from asynchronous contraction of the ventricles, sometimes gives warning before the heart's action becomes rapid. Recovery is slow and there is often continued precordial pain and oppression. Such patients should be watched until the knee-jerk returns. I have recently observed a case for several weeks in which the muscles of the throat, legs, arms and eyes were involved, as well as the heart and respiration. It has not seemed to me that the usual cardiac tonics, such as digitalis and strophanthus, or even strychnia, are of much avail in this state. Alcoholic stimulants by the mouth, rectum, or subcutaneously have been of service in some cases of repeated collapse due to this condition, and the electric battery may be tried. Free elimination of the toxines, however, through the skin, bowels and kidneys, is quite as important as urging the heart and nervous centres to increased action.

In a former paper (1893) relating to the advantages to be derived from the opening of the New Hospital for Contagious Diseases, I ventured to say that it was not too much to expect that improved methods, especi-

ally as applied to the early stage of diphtheria, would result in a greater proportion of recoveries. We were not then aware of the extent of the antitoxin experiments which were going on in France and in Germany. In spite of the skepticism engendered by previous serotherapeutic failures, and the commercial competition which the new remedy has excited, the evidence presented by Roux, Behring and others is so detailed and complete that a general feeling of hope and belief has arisen that the enormous mortality from diphtheria will soon be a thing of the past.

[Note. — During the last two months the mortality in 100 cases treated at the City Hospital by the antitoxic serum has been 14 per cent. These cases were mostly in the service of Dr. Withington and were of severe type.]

## MEDICAL TREATMENT OF DIPHTHERIA.[1]

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In discussing the treatment of diphtheria the first question that presents itself is whether we shall treat it at all, or whether we shall decide that it is too dangerous, and shall therefore abandon it entirely to men without practice and without families, that is to say, give up the treatment of one of the most serious diseases known, to young men without experience. If this is really necessary it must be done; and if it is unfortunate for diphtheria patients, so much the worse for them. But in forming such a decision, which I think is a wrong one, we should be governed by reason and not by panic, that is to say, not by blind, unreasoning fear. If by study of the means by which contagion is spread, we can learn to take intelligent measures against it, and render it safe to go from diphtheria anywhere; then we are able to widen our sphere of usefulness and perform a duty which we owe to those who trust us with their health and lives.

Every one knows that under some circumstances diphtheria can be carried by mediate contagion. Of course, clothing or hands may be infected by contact with the patient; and there is positive evidence that clothing once infected may under suitable conditions retain the poison for a long time. On the other hand, there is, so far as I know, no evidence whatever that it floats about in the air, while there is certainly much evidence to the contrary. It is impossible for me to give all the evidence, much of it forgotten, that during a long service in the diphtheria wards has crystallized this belief into my mind; and it is not the intention of this paper to go beyond personal experience. I might cite cases of tonsillitis that have been sent to the City Hospital with the diagnosis of diphtheria, and have, of course, been admitted to the diphtheria service. After a proper period of observation very many such cases have been decided not to be diphtheria and have been discharged without contracting it, although breathing the air of the ward for days.

On one occasion last winter having made a two hours' visit, accompanied by two internes, a nurse and seven students — ten in all beside myself — an ample number to stir up whatever dust might be free, — I went directly to the laboratory without going into the open air, and had cultures made from my pantaloons. New pantaloons were worn on this occasion in order that they might not be filled with street dust. These cultures were made from cotton that had been rubbed over the lower part of the leg, especial attention being paid to the inner surface where it slides on the boot. These cultures were examined by Dr. Wright with great care and with negative result so far as the diphtheria bacillus is concerned. I do not mean that there are no diphtheria bacilli on the floor. I know[2] that there are — sheets, etc., must occasionally touch the floor; but for a single severe practical test as to the danger of carrying contagion from the ward, this appears satisfactory. On another occasion I had my moustache examined — I think by Dr. Cumston — after spending a long time in personally examining nearly every throat in the wards. Numerous streptococci were found but no diphtheria bacilli. One would expect these results from the way in which these bacilli will often adhere to definite places for weeks, without invading neighboring parts. Thus they will be found on the tonsil but not in the nose, or *vice versa*, or membrane will remain in the larynx visible with the aid of the laryngoscope for long periods, during which the bacilli are not found elsewhere.

In order at once to illustrate the immunity with which the air of these wards can be breathed so long as contact is avoided, and to show what can be accomplished with the aid of antiseptics, let me report two cases.

Last winter a woman was admitted with supposed pseudo-diphtheria — a case that I shall not report in a collection of pseudo-diphtherias that I am making, because of a possible doubt as to the diagnosis. She had a syphilitic eruption, alopecia, and warts on the vulva. There was a mucous patch under the tongue; and while the appearance of the throat was that of diphtheria in the opinion of the admitting physician and of several of my colleagues as well as of myself, yet as the bacilli of diphtheria were never found, there might be a doubt in the minds of some who had not seen her. The day after admission this woman was delivered of a child in the ward. Dr. Stevens, the senior interne, attended to the confinement, giving a corrosive vaginal douche (1 to 1,000) before and after birth, and cleaning his hands with soap and water, then corrosive sublimate, and then permanganate of potash followed by oxalic acid. Of course, he paid particular attention to his nails. He must have had recently infected hands, as he had done several intubations within a short time; but his precautions were sufficient, for numerous cultures from the vagina at various times afterward, failed to show the presence of diphtheria bacilli. The woman stayed in the ward, and was attended by diphtheria nurses, who always corrosived the hands before touching her. She wore an antiseptic pad. The baby was nursed by the mother, and cultures from its mouth and nose were always negative. That this might be done safely, the child was kept in a basket and never touched by the mother, while the breast was disinfected with corrosive sublimate before each nursing. Had I thought that the mother had true diphtheria, and had I not known that she had syphilis, I should probably have taken a different course on her account.

Another woman, with true diphtheria complicated with lobar pneumonia, was delivered in the ward at

[1] Read before Boston Society for Medical Improvement, November 26, 1894.

[2] Wright: Centralblatt für Bacteriologie, 1894.

eight months. This labor was in charge of the junior interne, Mr. (now Dr.) Waughop. An hour and a half was spent in resuscitating the child which had swallowed large quantities of amniotic fluid. It was then isolated in the ward as the other had been, and was fed from a bottle for two weeks, owing to the neglect of its friends to send for it. Notwithstanding its remarkable history, numerous examinations failed to find diphtheria bacilli in its mouth or nose. The course of the mother's disease, unfortunately gave us no opportunity to make cultures from the vagina. Dr. Waughop's precautions were soap and water and corrosive sublimate. Here, again, was an extremely good chance for infection, and the greatest credit belongs to both of these gentlemen, and to the nurse Miss Tirrell, all of whom must have infected their hands again and again every day, but all of whom were careful to disinfect.

Since the construction of the present diphtheria building, I have had service in it every year but one, in terms of one, two or four months; and while constantly watchful, I have never had reason to suspect that I had carried diphtheria from it to any one. During the present year I had a four months' service, the wards being uncommonly crowded;[2] and although I was attending to my usual patients and was seeing a fairly large number of children at the time, it so happened that only once did I see diphtheria in any one whom I had been near for many weeks. Indeed, I saw very little diphtheria among private patients. That once was the case of a child who had been in the room when I examined her sister on a single visit a week before, and who had been exposed at school since.

If this can be true of a man who is spending from one to three hours a day, oftener three than one, in the largest collection of diphtheria in the country (unless it be at New York), perhaps it follows that his methods of disinfection are sufficient. They are intelligible if one believes, as I do, that this disease is carried by contact, either direct or indirect, and that it does not appreciably float about in the air. (1) A clean linen cap and coat were worn while in the ward; both, I believe, unnecessary if one will be sure that neither his own infected hands, nor the patient, nor anything touched by the patient, or that has been touched by the nurse comes in contact with his dress or face or hair. (2) The sole of the boot was disinfected with corrosive sublimate after leaving the ward. (3) The hands and wrists were soaked, not merely wet, in corrosive sublimate, 1 to 1,000. (4) This solution was allowed to dry into the skin, unless a towel was at hand that had been touched by no one in attendance on the patients.

Leaving the treatment of the physician and coming to that of the patient, I may say that personal experience, so far as it entitles me to form an opinion, would lead me, at present, to give a better prognosis in cases in which the diphtheria bacillus is absent than in those in which it is present. In some twenty cases that came under my care last winter there were no deaths, and generally they made early recoveries. It is my impression that the same is true of my previous term.

Diphtheria in which the bacillus is found, begins, as a rule, very gradually. I have made particular inquiry with regard to this point in about half the adult cases that came into my service last winter. All had been at their accustomed employment for one, or two, or more days, sometimes many days, after the beginning of sore throat or other symptoms of disease, such as coryza or malaise. Nevertheless, at the time of coming under observation, the circulation was always poor. I do not recall any exception. This poor circulation, which continues until convalescence is well established, is often manifested not so much by change in the rate of the pulse as by its compressibility. It is also shown by the slow return of color when it has been pressed out of the hands. This last is a very common symptom. Therefore, I am in the habit of giving stimulants from the beginning, often with a small initial dose, but knowing no upward limit until the pulse is strengthened, or on the other hand, intoxication or permanent smell of brandy are reached. I cannot recall more than one case of intoxication, but a permanent smell of brandy is a danger-signal that I have known to be followed by vomiting when its warning has been disregarded. Some patients can take surprisingly large amounts. The most extreme case that I recall was a girl of seven years with septic diphtheria, who took twelve ounces of brandy per day, with no apparent effect except to keep her heart beating. Of course, such cases need careful watching. Digitalis and strychnia have, I am sure, a valuable place in enabling us to keep the dose of alcohol within the limits of the stomach's tolerance. Rather to my surprise, the effervescence of champagne does not irritate the sore throat in all cases.

Since the disease is so exhausting, feeding is an important part of its treatment, but it is sometimes difficult on account of intense soreness in swallowing. Ice cream, iced milk, or iced milk and brandy mixed with a cobbler-shaker or an egg-beater, have enabled me to give much more food than I could have given without them. Rectal enemata have a place; and twice last winter, when the rectum failed to retain these, I have ordered liquids to be administered to a little child by means of a soft catheter into the stomach. Both children died. In one case the house physician exercised the discretion allowed him by stopping treatment, as the child was failing in spite of it. It is, I think, a cruel treatment, only to be resorted to in emergency. Even then, if there is great resistance, perhaps by exhausting the strength, it may kill as surely and less comfortably than would total neglect.

Rest is so important in maintaining the general strength that any treatment involving frequent serious disturbance of the patient ought to be looked upon with great suspicion. Disturbance of rest may do more than wear out the strength; it is just possible that it may increase the area of the local lesions. So little is known of the conditions favorable to the action of the diphtheria bacillus, and the following group of cases is so unusual, that they are reported for what they are worth.

Two internes, comfortably sick and occupying the same private room, amused themselves by playing ball for the greater part of an afternoon, tossing a folded handkerchief from bed to bed. On the following morning each of them was much prostrated, and each had an enormous increase of membrane. Two women, comfortably sick, acquaintances and also occuping a private room in common, were in and out of bed and in each other's beds many times in one evening, giving the nurse some trouble. The following morning each of them was much prostrated and with a great increase

[2] During these months there were 320 diphtherias in the service, including a few admitted with wrong diagnoses, but not including those in the wards on the first of February.

of membrane. Some twelve convalescent children were allowed to play together. They were so long in getting entirely well, that immediately after the occurrences just mentioned, they were all ordered to bed. They then began to recover one by one. These children had had scarlet fever as well as diphtheria.

Placing great stress on economizing strength, I think that care should be taken not to abuse the use of steam. It makes a depressing atmosphere, and if steam is concentrated about the bed by means of a tent, it also makes a close atmosphere, at times a very foul one. It is recognized that steam inhalation sometimes relieves dyspnea before surgical interference as well as after; and it is the abuse, not the use of steam that is objected to. I have no comment to make on its use after operation. Before operation, however, I think it should be intermitted long enough to find out if the occasion has passed, as we now know that the relief given by steam and poultices is occasionally permanent. Such permanent relief is so unusual that I was formerly inclined to think it occurred only in cases where dyspnea was due, not to membrane or infiltration, but to dryness of the mucous membrane caused by passing through cold streets. I have had, however, a few patients in whom this symptom has come on after days of residence in the hospital, and who have yet recovered under this treatment alone. Therefore, the rule, once dyspnea always operation, has a few exceptions. They are probably very few; and I should be sorry to write anything that would cause delay in seeking surgical aid for unrelieved dyspnea, even in case the immediate danger to life might not seem great. Such delay would mean wasted strength.

Among means of treatment, in which the present year's experience has taught me to place great reliance, is the combination of fresh air and sunlight. During February the wards were overcrowded, unavoidably so it seemed, and there was more septicemia than usual. For the first time in my life I learned to know the appearance of septic eruptions, although I had seen an abundance of septic diphtheria before. Among the children were many sore fingers, reddened about the nails. A few patients had red purpuric spots on the body as large as the thumb-nail. Others had an eruption closely resembling that of scarlet fever, but which in my opinion was not due to that disease. This eruption did not follow the regular march of scarlet fever from above downward, and the punctate spots were larger and quite purple. None of these patients lived long enough for desquamation. When, at last, enough admissions were refused to reduce the number of patients to the normal and the wards were cleansed, these eruptions suddenly ceased to appear. I recall one child desperately sick for weeks getting well, his improvement beginning on the day that he was moved from a small, crowded room to a bed in a large ward, where the morning sun streamed over him. The change for the better in each twenty-four hours was marked, and this was the only alteration in treatment. When the season was so far advanced that convalescents could be sent, and the beds of some who were not convalescents moved to the eastern piazza for the morning, and their dinners sent there, there was again sudden general improvement. Of course, this might take place in any disease, but the known destructive power of sunlight on diphtheria bacilli ought to be considered in connection with it.

It has been of interest to me to determine whether enlarged cervical glands and general infiltration of the neck were best treated by poultices or by ice-bags. After close observation of a large number of patients, I have no opinion as to which method causes these symptoms to disappear soonest; but a decided opinion that one or the other generally gives comfort, and that the large majority prefer the poultice, while a smaller number distinctly prefer the ice-bag.

Local applications to the throat are sometimes highly useful, although perhaps their importance is less than that of the general treatment. They are commonly made by gargles, swabbing or spraying. I have had little experience with gargles in diphtheria; swabbing is always objectionable to children. It frightens them and leads to a struggle, with corresponding waste of strength. If done gently it is sometimes preferred by adults, especially by those with very sore throats. Spraying seems the only practicable way of making these applications to children; but whether for children or adults, spraying should be done with the greatest gentleness. The mechanical irritation of a powerful spray is often extremely painful to an angry swollen throat, quite irrespective of its composition; and I believe that the complaints about the pain caused by certain sprays, depend more upon the manner in which they are used than upon anything else. There are times when any application, or even the opening of the mouth is painful, and there are adults who have decided preferences between the swab and the spray. I know of no reason for not consulting their preferences.

Peroxide of hydrogen has been used by me very largely as a local application. I think that it has been over-estimated but that it has a value; and I am sure that it is not the injurious drug that it has been said to be. For instance, it has been reported that solutions of fifty, fifteen, or even seven-and-a-half volumes are caustics. I think that these statements, as applied to the throat, must have originated in the use of a different peroxide from that which we have, or from a violent manner of use. It has not been my experience with the fifteen-volume solution furnished by the hospital or bought at various drug-stores in Boston. Children, as a rule, do not complain of it in spray, although they will not tolerate that or anything else applied with swabs. The same child will make no objection to the fifteen-volume spray in the mouth, will say that it does not hurt, and complain of the three-and-a-quarter volume in the nose. As a rule, adults say that even the fifty-volume spray does not hurt the mouth, although there are exceptions. Some even say that it is a relief to have the mouth cleaned with it. Complaints of the fifteen-volume spray are very rare. I have a few times seen a patch of denuded mucous membrane on the palate, due I thought to a fifty-volume spray. I have never seen this from the fifteen volume. I think that constant use of the fifty-volume spray is apt to redden the mucous membrane, although it is not sure to do so, and therefore that used in that strength it is probably an irritant. Being such, its continual use may possibly prolong the existence of the membrane. Whether I have or have not had this experience, I do not know. Some membranes last a long time with very little treatment, just as others disappear soon.

I have sprayed my own throat thoroughly with a fifteen-volume solution bought of an apothecary, and

it caused no pain although there was a slight sensation of effervescence. A fifty-volume solution procured at the hospital, and thoroughly pressed on absorbent cotton into the inside of the cheeks and lips until it began to be swallowed, caused very slight tingling, which lasted longer than the application. The same specimen rubbed into my wrist caused severe pain. Dropped upon the hand, it bleached it for thirty-six hours.

I repeated these experiments upon myself with another specimen, made by a private apothecary by boiling down the weaker solution of a different manufacturing chemist, and got identical results. The difference in the sensation in the mouth and on the hand was in each case most marked. Observe that the application to the hand and nose are painful, but, in the mouth the effect is much milder. Possibly a rapid dilution with saliva may account for the difference. It is to be observed that all my reports of the fifty-volume spray were when the application had been made by a trained nurse with great gentleness. I think we may conclude that the fifty-volume spray, while seldom a caustic, is too strong for routine use, if the object is merely to clean the mouth and not to exterminate the bacilli. Of its use for the latter purpose I will speak later. Second, any appreciable strength is too strong for the nose. It has the additional disadvantage that it probably penetrates the nose less far than most applications, because it fills the nostrils with foam, sufficiently to prevent the passage of a gentle spray. Third, there is no objection to the use of fifteen-volume solutions in the mouth.

So far, I have considered merely the question whether the peroxide of hydrogen does any harm. Does it do any good? It removes any bad odor from the parts it touches, and it cleans the dirty membrane, leaving a white instead of a gray or yellow surface. It does this almost immediately, and it probably does it by oxidizing and disintegrating the surface of the membrane. It appears to me that this is an advantage, that by removing a certain amount of *débris* we must remove a certain amount of the danger of sepsis, and this quite irrespective of whether bacilli are destroyed by the reagent or not. If, as is said to be the case, they are destroyed, so much the better. I say that the surface of the membrane is probably disintegrated, because I have known a large piece of membrane placed in a fifteen-volume solution immediately on being coughed up, to become completely disintegrated in about two and a half hours, and another in a fifty-volume solution in an hour. So long an exposure does not appear to me to be practicable in the throat, very often in one patient. If the treatment consists in a short application only, the gross appearances are the same, whether the fifteen- or fifty-volume solution is used.

When this drug was first introduced for diphtheria in the City Hospital, internes and nurses then on service in that department, and who had seen many different applications, became immediately enthusiastic, such of them as I talked with, over the new spray. I had myself been making use of corrosive sublimate (1 to 15,000), as I had formerly used salicylic acid and other washes, and it appeared to me that we had found something better. In 1892 I divided the service into four parts according to the location of beds, treating the throats in one with fifteen-volume peroxide of hydrogen, in another with corrosive sublimate (1 to 15,000), a third with Dobell's alkaline solution, and the fourth with a spray of boiled water. In a few days the throats treated with peroxide and those treated with corrosive were in general so much the cleaner, that the other two sprays were withdrawn. By cleaner, I do not mean, necessarily, that there was less membrane. It took longer to decide between peroxide and corrosive, but in a week the general difference in appearance between the two sets of throats, was such that I withdrew corrosive and made the use of peroxide general. It has the additional advantage of being purely local in its effect. I have twice known corrosive sublimate to salivate when used in weak spray. The nature of the diphtheria mouth is such, too, that mercurial poisoning is harder to detect than in syphilitic mouths, for instance.

I think, then, that where there is much membrane there is an advantage in disinfecting the mouth; that peroxide of hydrogen is practically such a disinfectant, perhaps technically so; and that it is one of the best, perhaps the best at our command; but that its uses should be confined to the mouth and what can be reached through the mouth. This is speaking of the weak solution.

It has been claimed that by prolonged applications of the strong solution, the membrane can be removed and the progress of the disease cut short. That the membrane can be removed is, I believe, true. That the progress of the disease can be cut short, is improbable, except in cases where all the bacilli are still on the surface. I have not observed that the use of this strong spray every two hours for a few minutes at a time, exerts any influence on the duration of the disease. Certainly, cases will continue for a long time, even when such treatment is begun immediately on admission to the hospital. Neither does this two-hourly treatment practically remove the bacilli in those cases in which it is continued after the disappearance of the membrane. They may continue to be found for weeks in spite of the treatment. I believe that I have seen a highly septic mouth become steadily less septic during three days because of the hourly use of the strong solution, it having been previously getting worse, but that this was at the expense of great prostration due to manipulation. I have not tried to repeat this observation on any other person.

The following history is worthy of being reported. An interne of the hospital who had seen, or at least heard of, persistent thorough use of strong solutions, entered my service as a patient. While perfectly polite, it was evident that he was anxious, and not satisfied that all was being done that might be. His case, too, was quite stationary. Therefore, I chose to begin for him the use of fifty-volume peroxide for a few minutes every hour, day and night. This began on the seventeenth day after admission. On the eighteenth he persuaded his nurse to give him half-hourly treatment, so that he was being sprayed fifteen minutes out of every thirty. On the nineteenth I forbade this extreme treatment, because he was frightfully prostrated. His pharynx was then half covered with membrane, but the next and every succeeding bacteriological examination were negative, although none had been so before. Local treatment was at once stopped and the membrane disappeared on the thirty-first day. Some critics would probably say that this man recovered through the heroic use of peroxide. Others that his

membrane continued long after he ceased to have diphtheria, as the result of local irritation. Possibly both might be right.

I have not felt warranted in repeating this experiment; nor should I have pushed things as far as I did with this patient but at his understood wish, he being entitled to an opinion and being in my care by regulation, not by choice. The case is, however, rather suggestive. It is barely possible that such treatment for a few applications at the very beginning of the disease is not to be condemned, provided the patient is strong enough and can be closely watched. If unsuccessful, however, just so much strength will be used up at the beginning of a prostrating disease.

Since becoming dissatisfied with the use of peroxide of hydrogen for the nose, I have gone back to insufflations of iodoform, first clearing the way if necessary with forceps or a spray of sterile water. This answers as well as any treatment of the diphtheritic nose with which I am acquainted, but leaves much to be desired in bad cases. In such cases, I doubt if any spray reaches the whole surface. The opinion of aurists seems to be opposed to a douche. Accidents have occurred which have led to loss of hearing and loss of life. Still I am not satisfied that in a few septic cases, the risk of driving diphtheria bacilli and other germs into the Eustachian tube may not be legitimate, in view of the gravity of the disease. The difficulty is in selecting the cases, because some very bad cases do recover without running this risk. I have no experience in this matter to report.

## REMOTE RESULTS OF THE REMOVAL OF THE UTERUS AND OVARIES.[1]

BY ERNEST W. CUSHING, M.D.

The question in regard to the removal of the uterus, which usually carries with it the appendages, is a very important one. It is a subject which it is well to consider because it is one of the latest developments of surgery, which promises a great deal and is overcoming the opposition to it. When, in 1887, A. Martin came over and performed the first vaginal hysterectomies for cancer, there was intense opposition. Reeves Jackson denounced the whole procedure in Washington, and the opponents said that it was a terrible and dangerous operation, and should not be tolerated for cancer even. Certainly that has passed now. When more operators began to do it, it was found that it was not dangerous. Martin did the first three cases in Boston, in September, 1887. In March, 1891, I reported before the Obstetrical Society of Boston, 21 cases with 19 recoveries; and I have done a very large number of vaginal hysterectomies since then for cancer, with even better average results. Anybody will now admit that the remote results of the removal of the uterus are good if it can save a woman from cancer, and about one-half the cases are saved for three or four years, and something less than that are saved permanently. I know it rather made me shiver when in 1885 Martin proclaimed that every uterus affected at all with cancer should be removed entirely—yet now this rule is established.

Then came the question of removal of the uterus for fibroids, and that again worked its way against opposition. Where the mortality used to be 60 per cent. it is now less than 20 per cent., and the best results give not over six to ten per cent.; so that the removal of the uterus for myoma is now as well established as the removal of the ovary for ovarian tumor. The increased safety of it and the advantage to suffering women is forcing surgeons continually to operate in cases where they would not have done it a few years ago; that is, the increasing knowledge of the bad effects of leaving myomas, such as complications which finally ensue from pressure on the ureters, on the intestine, from degeneration of one kind or another, long-continued hemorrhage, complications of salpingitis, etc., have wrought such a change of opinions, that surgeons are much more ready to remove the uterus now than a few years ago. And some are going so far as to say — which makes the conservatives rather hesitate — that they will remove a fibroid the size of the fist to guard against future growth and accidents. Now, however, by the development of surgery it is found that by vaginal hysterectomy a small fibroid can be removed with ease and with practically complete safety. If we can essentially without danger remove the little fibroids, presently there will not be any big fibroids, just as there ought not to be any big ovarian tumors in civilized communities. Here is a fibroid I removed the other day. There was a prolapse and fibroid. The fibroid could not be brought down whole; but by pulling it down and splitting it, the whole thing was easily removed. The woman is cured of the prolapse. She does not realize that anything has been done to her. The entire absence of shock after vaginal hysterectomy, is one of the marvels of surgery.

If it is safe enough for that, then comes the question of removal of the uterus for prolapse. You know the difficulties of the operation for prolapse and all the different things tried. Finally, A. Martin propounded removal of the uterus for prolapse. Now it is done by many, and laid down as a proper thing to do. If a woman has prolapse and is past child-bearing, slip the uterus out; it is the easiest thing in the world, and fasten the stumps of the broad ligaments to the angles of the wound in the vagina. Now, when we can remove the uterus by the vagina so readily, I cannot see the need of doing it from above as Polk in New York does.

What are the remote bad results of removal of the uterus and appendages? What has been charged against it is, in the first place, production of insanity; and, in the second place, the production of obesity; and, in the third place, loss of sexual desire, by which I suppose is meant sexual feeling. Now, in regard to the production of insanity, it is a fact that various gynecological operations are followed sometimes by insanity. I remember out of perhaps some 900 cases of all sorts of gynecological operations which I performed in the Murdock Hospital there were some three cases of insanity, all of which recovered. I had one case at the Charity Club Hospital, where after removal of a large fibroid the woman became violently insane in a few days, but she recovered. I have one case of a fibroid removed two years ago, where the lady, although apparently sane, confesses that she has occasionally suicidal tendencies. She wants to commit suicide, but knows it is wrong and does not do it. How far that is insanity, some of the alienist experts will tell.

[1] Read before the Obstetrical Section of the Suffolk District Medical Society, November 28, 1894.

I reported last year fifty abdominal hysterectomies for fibroids. Those included only the ones I did at the Charity Club Hospital and in private practice. During the last year at the Charity Club Hospital I did 11 abdominal and vaginal hysterectomies altogether, and outside about 20. Now, out of 150 abdominal and vaginal hysterectomies, the only permanent bad effect of any kind I know of is this lady who says she has suicidal tendencies. (I do not mean to consider here the recurrences of cancer.)

Now, in regard to the removal of the ovaries and tubes, we are getting on ground which is not quite so satisfactory as that for the removal of the uterus. The removal of the uterus is done for certain very definite indications. It is done for cancer or fibroids or prolapse, or by the extension which some operators are introducing now as a means when the tubes are badly diseased and the interior of the uterus inflamed with gonorrhea, etc., of getting rid of the whole trouble at once; therefore, you have certain definite diseases or states or troubles which are, as I might say, mechanical, at any rate not nervous. You can see and feel and demonstrate them, and the woman knows what she is cured of after she is operated on.

In regard to the removal of the tubes and ovaries, we get into a mixture of several different conditions. If a woman has tubes and ovaries diseased, full of pus, big as potatoes perhaps, and high temperature, chills, likely to die, it is one's duty to remove them. You let pus out anywhere else; and you must let it out there. What the remote effects are is of no consequence; you must get her out of immediate danger. If the woman has catarrhal salpingitis or the remains of old salpingitis which has bound the tubes and ovaries so that every month she is in agony; if she has had packing tried, the uterus pried up, pessaries used and she goes from one doctor to another, damning the last one all the time, it is time to do something; and even if she is not entirely cured, she is cured of the worst of it, and she gets over this agony every month.

Then comes the question how much she is cured. A certain portion of these women continue to suffer. It is partly owing to conditions which could not be helped at the time; the uterus was brought up, but possibly it does not stay up; there may be new adhesions to the bowels, to the abdominal wall. Some of us keep running across these cases. I have had a case where a woman could not control her urine at all for three or four years. I found that the previous operator had put on a ligature which had got one of the epiploic appendages in with the stump of the ovary, and was pulling and pulling and twisting; and the epiploic appendage and a bit of the base of the bladder and stump of the ovary were all together, with this ligature in the middle. Her sufferings were because something had not gone quite right. In another case you will find firm adhesions to the abdominal wall; somebody has not pulled down the omentum, or there has been an adhesion of the intestine to the abdominal wall, or it may be that there are adhesions of the stump to the intestine or the bladder. There are these different complications, and they require the thing to be done over again, and a great deal of that work is gradually being done. Sufferings are caused by the fact that there is still some trouble which may require another operation.

Another class of cases is where there are cirrhotic ovaries. The great trouble is dysmenorrhea. First, the woman has medical treatment, then gets a surgeon, gets dilated, curetted and packed with gauze, and does not get any better, and somebody has to sit up and give her chloroform and load her full of morphine every menstrual period; and finally she has to have an operation, and you find something of which very little is said in the books. The first stage seems to be an enlargement of the ovary; it becomes large and white; gradually the white tissue begins to shrivel, until the ovary keeps getting smaller and smaller and harder and harder until there is no chance to swell and open and let the ovum out, and the woman suffers tortures. After she has suffered that way for years her nervous system is broken down; that is the result of the long-continued injury to the nervous system by the disease. It must not be laid up against the operation.

There is another class of cases, however, which are the weak-backed sisters who do not have any anatomical disease that can be discovered. They have pains, aches, miseries; they may have studied too hard, may be neurasthenic by nature, and they are very apt to suffer from dysmenorrhea; and finally somebody comes along and removes the ovaries, and they do not get a bit better. It is just as if a woman had neuralgia in the teeth, and you pull the teeth and it goes back of the ear. These women are miserable and would be miserable, and nothing I know of will stop it. The surgeon gets to recognize them as a "holy terror." The distinction in my judgment is that the pain does not limit itself strictly to the menstrual period. With the cirrhotic ovary, as I have found it, the pain is strictly limited then and there to when the ovary tries to functionate; but the woman who has pain in the head, pain in the back, and pain all over, is not a good case for surgery. Some of those women were operated on years ago. It is especially these cases where there is little to go on except pain, which are the legitimate causes of reproach to surgery; and I do not think surgeons are now as ready to interfere with those cases.

Then come the cases where the ovaries are removed for dysmenorrhea where there is a real anatomical basis, such as inflammation of the ovary, suppuration of the ovary, inflammation of the tube, adhesions; those are removed for disease, not dysmenorrhea. The woman has a right to have them removed, and if she is not entirely cured it cannot be helped.

There is one other cause of suffering that many set down to disease of the ovary, and that is varicocele of the pampiniform plexus. It is liable to give rise to various sufferings, such as pain, pressure, nervous and mental symptoms, similar to those caused by spermatocele in the male.

There are cases where the ovaries are removed for other kinds of nervous symptoms; in the first place, for hystero-epilepsy, epilepsy coming on at the menstrual period and at no other time. I have not seen many of those cases. I have operated in two; one was cured and the other ameliorated, but not cured. I fight shy of that all I can.

The cases where the ovaries have been removed in case of insanity, with the effect in a certain proportion of cases of curing the insanity, have been, so far as I know, always cases of anatomically demonstrable tubal or ovarian disease. The woman after long-continued suffering finally breaks down, gives way in the intel-

lect and is put in an asylum, and is found to have an old pus-tube or retroverted uterus bound down which is the centre and starting-point of suffering and probably a long course of morphine, and not a very small number of those cases have been operated on and occasionally one has been cured. The cure is not on account of the removal of the ovaries, it is on account of the removal of an inflamed and irritating mass, and it is possible it might be something else than the ovary and the removal of it might have the same effect.

Then come the cases where the ovaries have been removed for nymphomania and masturbation approaching idiocy. I have had only one of those cases. The woman was becoming insane, a terrible sufferer from masturbation, utterly miserable, felt she had committed the unpardonable sin. Within two days from the operation she said she felt as if a weight had been rolled off her soul; she got well. It took her six months to recover her nervous health. She first did work for her sister and helped about the house, and then came to me and confided that a widower with four children wanted to marry her, and I advised the marriage, which has been very happy. That is the only case of that kind I have seen reason to operate on.

In regard to this whole subject there is at present a sort of reaction in surgery. It was started a year or two ago by a paper by Dr. Goodell in which he set forth the various woes and evils which might follow removal of the appendages. Dr. Polk at Washington, at the meeting of the Congress of American Physicians and Surgeons, took up something in the same strain. He called attention to the fact that removal of the appendages which brought about the change of life, caused not only the temporary symptoms, flushings and various miseries which women have to go through at some time any way, but it also brought about atrophy of the vagina and genitals in some cases, and a loss in some cases of sexual desire and feeling, which certainly is a serious matter.

My experience, however, has been very different from that of Dr. Goodell. I have taken pains to inquire, both personally and through the superintendent of my private hospital who is a lady physician. The women have talked frankly, and almost none of them have complained of or admitted that they felt any difference in their sexual desires or feelings. As a matter of fact, actual sexual desire is not a condition in which most women take pride or feel it is anything to be particularly cherished or desired. It is rather an uncomfortable state. The ability under proper circumstances to have as much sexual feeling as they previously had is not impaired in the vast majority of cases. On the contrary, in all these cases where there has been inflammatory trouble where the women have been made sick, where they have been nursing a tender ovary, the removal of the disease which had caused suffering and extinguished sexual desire and made sexual connection intolerable has been of very great relief. The removal of the uterus has no more effect than removal of the appendages. Many of the women are married women, and they tell me they are just as well off as they ever were. That some of them grow stout I also believe; but some women grow stout any way and being laid off active exercise and pretty well fed and urged not to do anything and having good care, it is a good starter to getting stout.

Therefore, to sum up, my experience has been that the removal of the uterus has no more evil effects than the removal of the appendages alone, and that the removal of the appendages alone has in itself under very rare circumstances caused a loss of sexual feeling, that is, of the capacity for sexual orgasm, which is to a certain extent regretable, but those instances are very rare. If we take one hundred women whose ovaries have been removed I very much doubt whether you would get a much greater proportion who gradually lose their interest in sexual matters than in an equal number without the removal of the ovaries.

## ULTIMATE RESULTS OF THE REMOVAL OF OVARIES AND TUBES.[1]

BY J. G. MUMFORD, M.D., BOSTON.

The operation of removal of the ovaries and tubes seems to be gradually finding its proper place in surgery, as the indications for it, the manner and extent of the proceeding, the subsequent treatment and the results obtained are better understood.

We have no more right to talk about these operations as distinct species, and to discuss the results as a whole, than we have to talk in a general way about the uniform results of skull fractures or leg amputations. Twenty-five years ago most severe compound leg fractures were amputated. Six or eight years ago very many painful ovaries were removed. In both cases we have got beyond that stage of cutting off the offending member. It is now for good cause only, and as a last resort, that the uterine appendages are removed. Any tyro — I had almost said — can tie off a Fallopian tube; it is the ingenious and successful surgeon who restores the organs to their normal function.

The personal factor of the patient enters largely into this question of ultimate result. The patient very commonly wishes the operation for the relief of subjective symptoms. Often when these symptoms are but partially relieved she expresses the greatest satisfaction. On the other hand, there are cases in which the operation is imperative — for gangrenous, sloughing or suppurating organs, and in which their removal has saved life. Yet we often find the patient constantly thereafter complaining of recurrence of the old symptoms and not at all grateful that her life has been saved. It is obvious, therefore, that the question of ultimate results is in one sense a relative one and must be answered by each individual surgeon and patient. On the other hand, one may look at the question from the broadest point of view and ask if the general health of woman has not been improved by this operation.

I found that I could put my hand on seventeen cases of removal of tubes and ovaries, of which some sort of a subsequent history could be given. Two were cases of cystic ovaries; painful, about the size of pullet's eggs. In one I did the partial operation of Polk and Pozzi on both ovaries. The woman has since married and had a child. She menstruates regularly and is free from pain. From the other woman both tubes and ovaries were removed. Ever since the operation she has, on sitting, pain, sometimes very severe, which seems to be referred to the right stump. She looks upon herself as a castrated woman

[1] Read before the Obstetrical Section of the Suffolk District Medical Society, November 28, 1894.

subject to pain equal to what she had before the operation, and that seems to me to be the case. Of eight cases of pyo-salpinx, one has much pain, one has a hernia, two much recurring headache and four may be considered well. There were seven cases of what are commonly called chronic salpingitis and ovaritis. Of these, three are well, three much improved and one not improved. All but two of these cases are taken from hospital records or from the lists of other men whom I assisted.

In all these cases in which the symptoms have recurred the variety of the symptoms varied, and they are by no means always the same as those originally complained of. The commonest complaint seems to be pain. How frequently neuroma of the stump occurs I do not know. I saw it once at the hospital in the case of a secondary operation. I think in the service of Dr. Richardson. The patient had had an ovarian tumor removed two years previously, and on opening the abdomen to remove a cyst on the other side a neuroma was discovered in the old stump. I fancy that this may be a more frequent cause of post-operative pain than is generally supposed. It is common enough in the stump after arm and leg amputations. Pain is frequently referred to contractions from adhesions. That this may be a most serious complication after abdominal section I had proof from a case of appendicitis in which I assisted Dr. Richardson. The patient appeared nearly well, some six weeks after the operation, when quite suddenly pain and symptoms of total obstruction of the bowel appeared. The abdomen was opened a second time and a coil of intestine, nearly strangulated by a recent band of adhesions, was liberated. This seems to be an unavoidable complication. It is said that the free use of some aseptic oil in handling the viscera will obviate it, but that remains to be proved. However that may be, it seems most probable that that old bugbear — adhesions — is at the bottom of very many of the ultimate bad symptoms after abdominal section. Of course, the skill of the operator and the perfection of his technique enter largely into the question.

I feel confident also that we are inclined to send our patients home too early, and to get them out of bed too soon. It cannot be that the reparative processes which demand the old surgical safeguards of rest and immobilization can be completed in two or three weeks. Our wound is out of sight and our knowledge of its condition must be gleaned from symptoms, yet I suspect that could we look inside the abdomen at the end of a month we should find the healing still incomplete in many cases.

It is unwise, too, to lose sight of our patients so soon after the operation as is the usual custom. The general health must be most carefully restored and the condition of the bowels, bladder, kidneys and stomach regulated. We have all of us seen a severe attack of post-operative constipation the apparent exciting cause of recurrent pelvic abscess.

I have not considered especially in these remarks the results of the removal of large tumors of the ovary and broad ligaments. For these the operation is usually imperative, as it is generally for pus tubes, and in both these cases the results must be considered good even if there remain some subsequent pain and other bad symptoms. Indeed, it is rather in the operation of choice that the patient most often asks herself, Was it worth while?

In looking over the recent literature of this subject I find that most of the writers dwell on the disasters of a few specific cases or take the subject as a whole without dividing it into its special classes.

The general feeling of such men as Lusk, Sutton, Mundé, Coe, Goodell, Remote, Kelly and others is that, as a whole, these operations are very distinctly valuable in proper hands.

Kelly's article in the *Johns Hopkins Bulletin* for 1890 is the most satisfactory summary that I could find. His results from ninety-six cases are very similar to those which I have given.

### CONCLUSIONS.

(1) Cases for operation should be carefully chosen.

(2) The patient's general health previous to operation should be more carefully looked to.

(3) She should be kept longer in the hospital or under treatment.

(4) The imperative cases, as a rule, show a better subsequent history than the elective.

(5) The cure is more often relative than positive.

## Medical Progress.

## RECENT PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D.

(Concluded from No. 6, p. 135.)

### INWARD ROTATION OF THE TIBIA.

TILANUS [20] describes a method of treatment of this deformity by what he terms rotation-straps (elastic straps connected above with a leather belt fastened around the waist, winding spirally around the thigh and leg and connected with the outer side of the shoe. When these straps are tightened, the feet are turned outwards and the inversion of the foot is thereby corrected.

### CONGENITAL ABSENCE OF THE TIBIA.

Joachimsthal [21] reports a case of this deformity which was treated by transplanting the head of the fibula from the outer side to the middle of the end of the femur, correcting by means of tenotomy and fasciotomy the varus position of the foot. The foot and leg and knee were fixed in a plaster bandage, and the foot placed upon a high sole to equalize the difference in length. The child was allowed to walk about, and was able to do so. The writer collects a number of cases of the same deformity, and the article is of value for reference as well as for being illustrative of the successful management of a case of an unusual deformity.

### OPERATIVE INTERFERENCE IN CONGENITAL DEFECTS OF THE ARM OR LEG.

Rincheval [22] describes the operative interference in this hitherto incurable deformity. The deformity consists in the absence of the radius or one of the long bones of the leg, and consequent malposition of the hand or foot. The operation consists of splitting by means of the chisel the end of the ulna and inserting the carpus (modified in shape if necessary by means of a chisel) in the split portion of the end of

[20] Zeitschrift für orthopädische Chirurgie, Bd. 3, H. 2, 1894, p. 136.
[21] Loc. cit., Bd. 3, H.2.
[22] Archiv. für klinische Chirurgie, 1894, B. 48, p. 802.

the ulna or the tibia in such a way that the inserted wedge is held by the two splintered fragments. The operation has been done by Bardeleben and also by Bardenheuer, and would appear to have been thoroughly successful. In one instance the ulna which was much curved was successfully rectified by fracture.

### ABSENCE OF THE DIAPHYSIS OF THE THIGH.

Grisson,[23] reports a case, with illustration of this unusual deformity. He mentions in the literature of the subject a case reported by Billroth. He mentions also other cases reported by Dumas, Buhl, Breschet, Veil and Duméril. Anatomical measurements are given.

### ANCHYLOSIS OF THE JAW: OPERATIVE INTERFERENCE.

Helferich,[24] reports a new method to prevent the subsequent relapse after the ordinary operation of excision in anchylosis of the lower jaw. The method consists of the insertion of a reflection of a muscular flap from the temporal muscle between the resected portions of jaw and the articulation.

### ARTHRODESIS IN INFANTILE PARALYSIS.

Karasiewicz[25] reports 61 cases treated by arthrodesis (87 operations); 33 were of the knee, all with satisfactory results; 44 of the ankle, with excellent results in 23, satisfactory results in 19; failure in two; two of the hip; three of the shoulder, with good results in two; satisfactory in one.

Broca[26] describes the method he employs in the ankle. It consists of an open division of the tendo-Achilles, and a long external curved incision which separates all the outer ligaments. The astragalus is then thrown outwards and the cartilage curetted, and that on the lower end of the tibia as well; the scapho-astragaloid articulation is also curetted. A plaster-of-Paris bandage is applied, and worn six weeks. He mentions eight cases.

### RELAXATION OF THE JOINTS AT THE LOWER EXTREMITIES.

Leser[27] describes a condition of the joints which is accompanied by pain, a sense of weariness, uncertainty in standing and walking, heaviness of the limbs and an unusual lateral mobility at the knees. The anatomical conditions are not to be easily defined. There seems to be a thickening of the capsules and a loss of elasticity. The cause of this may be an injury of the joints followed by an effusion into the joint which stretches it, or too prolonged traction upon the joint may cause it. As to the treatment, he prescribes massage, aspiration of the fluid if effusion is present, and if traction be necessary the protection of the knee by plaster-of-Paris. After treatment by proper apparatus, the protection of the weak joints from strain is of benefit.

### ARTHROPATHIES FROM SYRINGO-MYELIA.

Perrey[28] reports two cases of diseases of the joints following syringo-myelia. This affection, which results from a disturbance in the central canal of the spinal cord, leads in certain cases to diseases of the joints. They are chiefly of the upper extremity which is the reverse of what is the arthropathies from tabes. Men are more frequently afflicted than women. There is sometimes development of vesicles in the skin of the neighborhood. The inflammation of the joint is either a hydarthrosis or a suppurative synovitis. These may either be acute, appearing suddenly, or chronic. There is slight pain, heaviness of the limb. There is in the joint, sometimes subluxation and finally a distortion. The diagnosis from rheumatoid arthritis is to be made, but the latter is never as acute and never has the dislocation which follows this form of arthropathies. The disease is sometimes mistaken for leprosy. The only treatment is immobilization with orthopedic apparatus, puncture, arthrotomy.

### TREATMENT OF STIFF JOINTS BY MEANS OF MECHANICAL PASSIVE MOTIONS.

Krukenberg[29] has for some time successfully carried out the treatment of stiff joints by means of a variety of apparatus which is carefully described in his article. The principle is that of the pendulum, the force being graduated according to the length of the pendulum as regulated by a sliding weight. The appliances are ingenious, but can only be understood by an examination of his illustrated article.

### THE ELASTICITY OF THE CAPSULE OF JOINTS.

Fessler[30] has made a number of experiments in regard to this point, and has come to the conclusion that the capsule is less easily torn than the bone is broken. The capsule tears in different joints at the tension of different weights: the shoulder at 146 kilos; the hip, 380; knee, 350; foot, 248; toe, 62 and 30; fingers, 83 and 79; hand, 184; elbows, 169.

### HALLUX VALGUS.[31]

The conclusions which these writers form are as follows: that the resection of the head of the meta carpus does not interfere with the activity of the joint if the sesamoid bones are retained. Well-marked cases must be treated by resection. Wedge-shaped osteotomy of the neck of the metatarsus is especially indicated if the sesamoid bones are dislocated and deformed and cannot act as a support. Tenotomy is sometimes an additional assistance.

### PLANTAR FASCIA.

Ledderhouse[32] reports what he considers a tear of the plantar fascia. The condition consists of thickening and a local swelling of portions of the plantar fascia. This he considers to be scarred tissue, as a result of previous partial tears. In certain cases he thinks that excision is necessary, but in some instances a properly constructed shoe will be sufficient.

### ON THE ELASTICITY OF THE HUMAN FOOT.

Goledíwski[33] has made a very careful study of the elasticity of the human foot. He has proved by means of tracings and casts that the foot increases in length and width both actively and passively. The active increase in size is through the ordinary action of the muscles. The passive increase is developed by

[23] Archiv. für klinische Chirurgie, 1894, Bd. 49, p. 253.
[24] Loc. cit., 1894, B. 48, p. 871.
[25] Zeitschrift für orthopädische Chirurgie, 1894, pp. 432, 433.
[26] Loc. cit.
[27] Berliner Klinik, January, 1894.
[28] Paris Thesis, 1894.
[29] Deutsche Med. Woch., No. 32, 1893.
[30] Zeitschrift für orthopädische Chirurgie, 1894, No. 435.
[31] Salvador: Paris Thesis, 1894. Möller: Zeitschrift für orthopädische Chirurgie, 1894, p. 432.
[32] Archiv. für klinische Chirurgie, 1894, p. 853.
[33] Zeitschrift für orthopädische Chirurgie, 1894, p. 243.

he weight of the body. The stretching of the foot is also accompanied by an alteration in the form. The foot is wider when standing than when hanging and wider still on sitting. A sudden increase of weight can have a traumatic effect, tearing of the fascia on the inner side of the foot.

CONGENITAL DISLOCATION.

Hoffa[34] reports the results in the later cases of his operation; he finds that the acetabulum in the majority of cases was either well developed or partially so but never absent. In looking up the literature, Hoffa found the acetabulum in 104 out of 111 cases; in only seven was it absent or not marked. In order to secure the head of the femur in the acetabulum, Hoffa considers deepening of the acetabulum always necessary, even if the head is easily put back; and he prefers to deepen the acetabulum more rather than less. He prefers not to operate on children over ten. In a case three years after operation, he found that motion at the joints was excellent; the lordosis had disappeared, and the waddling gait had almost entirely gone. Two children with single luxation, one operated on at five and one at a year and a half, showed three years and one year after the operation, a perfect result. The joint was perfectly firm and without any limitation of motion. The failure of attempts to correct deformity without operation Hoffa considered as due to the presence of the ligamentum teres. In the cases he had seen, it was as a long broad band, and it is impossible for the head of the femur to build a proper new joint while the ligamentum teres lies between the pelvis and the head of the femur.

Bilhaut[35] reports a successful case in a child of ten. Kirmisson,[36] reports a death from the operation in a child of twelve, and disagrees with Hoffa in the belief that the acetabulum in these cases comes in the thickest part of the os innominatum. It seems to him that it comes in the thinnest portion. If an attempt is made to deepen the acetabulum, there is danger of perforation, which, however, is not necessarily a great surgical disaster.

Angeres[37] and Koch[38] report successful cases of Hoffa's operation. Phocus[39] reports cases of attempted reduction by the Paci method (namely, the Bigelow manipulation method), and is doubtful of permanent benefit in congenital cases through this mode of treatment.

PATHOLOGICAL ANATOMY OF CONGENITAL DISLOCATION.

Lorenz[40] describes the anatomical conditions of the joint. The acetabulum is always rudimentary. In certain cases in older children it is entirely covered with a thick mass of fibrous tissue. In a majority of cases the acetabulum is shallow, but can be found by the finger. In very young children the hollow is three cornered. He claims that the pelvis at the point of the acetabulum is thicker than is supposed. The upper end of the femur is atrophied, and the head is more or less flattened. The neck is shortened. The ligamentum teres is originally of normal condition, but after the fifth year Lorenz has found the absence of the ligamentum teres the rule. It is rather broader than normal, and usually double as long. The capsule forms the cap over the luxated head.

CONGENITAL DISLOCATION.

Mikulicz[41] reports five cases treated by the mechanical correction by means of a traction apparatus. The apparatus itself is extremely clumsy, and the cases as reported indicate a result similar to what has hitherto been obtained by this method, namely, a marked improvement, after two or three years of treatment.

THE EFFECT OF CONGENITAL DISLOCATION UPON THE SHAPE OF THE PELVIS.

Muhlenbrock[42] after investigating the alterations in the shape of the pelvis, which are to be seen in congenital dislocation from the malposition of the head of the femur and the lordosis, concludes that the pelvic deformities which result are of no significance in child-bearing. He has reported two cases of this deformity where the birth took place without any difficulty.

SEPTIC OSTITIS IN CHILDHOOD.

Mr. Edmund Owen[43] considers the acute inflammation of the diaphyses with relation to the early diagnosis, and its differentiation from acute articular rheumatism with which it is not uncommonly confounded. It usually begins with a chill, followed by fever and local inflammation, swelling and pain, and if allowed to continue, becomes an extensive osteo-myelitis. There is usually a spot of elevation with an area of redness, but this differs from acute articular rheumatism in that the heat, swelling, pain and tenderness are close to the articular area but do not involve it, at least not at the first. The tenderness is limited to the region of the [illegible] and connective below the junction of the cartilage, and then these structures point there is a definite thickening outwards at that point which sometimes misleads in the direction. The diagnosis is that two parts may be simultaneously affected. Usually by the time that the cases are seen by the surgeon the disease has become more or less extensive, and in the operation a sequestrum is usually found, but the early and radical operations give favorable results.

DISLOCATION FOLLOWING ACUTE ARTHRITIS OF INFANTS.

Dr. A. Thorndike[44] in an article which considers the bacteriological side of this subject, reports a case which shows that the dislocation from this cause is difficult to reduce in proportion to the disorganization and destruction of the joint. He operated five months after the subsidence of all acute symptoms, and reduced the dislocation by the operative method employed by Hoffa for the correction of congenital dislocation of the hip. A large, finger-like exostosis had grown from the lower border of the femoral neck, and projected so that the head could not be brought into the acetabulum. Its removal presented no difficulty. The case is instructive because it shows that even long-standing dislocations from acute arthritis may be reduced, and that bony obstacles to reduction may be successfully overcome by the Hoffa operation should it be impossible to accomplish it in the ordinary way.

[34] Münchener med. Woch., 1893, No. 18.
[35] Revue d'Orthopedie, 1893, No. 1, p. 3.
[36] Loc. cit., 1894, p. 3.
[37] Münch. med. Woch., 1894, No. 26, p. 512.
[38] Loc. cit., 1894, No. 15, p. 281.
[39] Révue d'Orthopedie, 1894, No. 4.
[40] Weiner klinische Woch., Nos. 11 and 13.
[41] Archiv klinische Chirurgie, 1894, Bd. 49, p. 368.
[42] Zeitschrift für orthopädische Chirurgie, 1893, p. 73.
[43] Lancet, May 26, 1894.
[44] Boston Med. and Surg. Journal, vol. cxxxi, p. 429.

### THE RESULTS OF CONSERVATIVE TREATMENT OF TUBERCULOUS COXITIS.

Prof. B. Bruns[45] gives in this article a rather unusually valuable series of statistics, as they are compiled from a large series of cases which extended over a long period of time (in all forty years), and are followed out for a long period dating from the discharge of the patient as cured. The article deals mainly with the results of conservative treatment, and is of special value, not being confined to the consideration of any one method of conservative treatment, as during this long time there has been necessarily fundamental changes in the therapy of coxitis, varying from the crude methods of blistering, hot irons, etc., to the more modern methods of fixation or traction, and also the more radical surgical measures. The investigators were aided in their search of cases by the fact that the population about Würtemburg is quite fixed; and in this way the records of 600 cases were collected, and of these it was found possible to examine 200. Among the things of interest which were found in this investigation was the number of cases which were considered at first as coxitis, which were of a different nature. One of these was the condition described by Mueller under the name of *Schenkelhalsverbiegung*, of which this clinic at Tübingen shows more than thirty cases. Another is the condition of acute osteo-myelitis beginning at the diaphysis, the hip-joint being peculiar in this respect as this point is within the capsular cavity. Fifty cases were found in this class, which pursued either a sub-acute or a chronic course; but these were ruled out from those under investigation, and also those the duration of which was less than one year and a half, and also all such cases in which there was not sufficient information. In this way the number was reduced to 390, of which 321 were treated conservatively and 69 by resection. He gives the following conclusions:

(1) Tuberculous coxitis occurs almost exclusively during the first two decades of life: 48 per cent. occur in the first decade, 37 in the second, and but six in the third.

(2) In one-third of the cases of tuberculous coxitis the disease pursues its entire course with no manifest formation of pus. In two-thirds an abscess develops, with rupture and fistula formation.

(3) Fifty-five per cent. of all cases of tubercular coxitis treated conservatively are cured. The time required for the cure averages four years.

(4) Death resulted in 40 per cent. of the cases; in the majority from the development of tuberculosis in other organs, particularly the lungs and meninges, or to a general miliary tuberculosis. In the fungo-purulent form death was usually due to amyloid degeneration, progressive suppuration and septic infection. Death ensued after an average duration of three years.

(5) In individual cases the ultimate result is markedly influenced by the occurrence or non-occurrence of suppuration; in the non-purulent forms 77 per cent. were cured, in the fungo-purulent only 42 per cent. The occurrence of suppuration within the joint more than doubled the mortality (75 to 52 per cent.).

(6) Of great importance in the prognosis is the age of the patient at the beginning of the sickness. As a rule, the prognosis became worse with the increase of age; the first decade gave 65 per cent. of cures, the second 56, the third and fourth only 28, and the fifth and sixth none. In the fungo-purulent form there were practically no cures when the patients were more than twenty years old.

(7) Of those persons who were really cured of tubercular coxitis, many suffered subsequently from tuberculosis of other organs. Of these, six per cent. died of phthisis during the first decade, nine per cent. during the second decade, and seven per cent. during the third and fourth decades.

The results, considering the cured cases, are gratifying, and are about midway between widely differing figures of many other observers; which is probably accounted for by the fact that the investigation extended over so long a period, and included so many cases, which reduced to a smaller degree the error of accidental variation. In considering these cured cases, the usefulness of the limb was noted. It was found that a majority were able to earn their living, although the gait was in most cases limping, the leg atrophied to a greater or lesser degree, and there was almost always found more or less shortening, and contraction and immobility of the joint. The deformity was found to be usually that of flexion, combined either with abduction, as was found in two-thirds, or with adduction as in one-third of the cases. The contraction is compensated by a tilting of the pelvis, but in some cases where the flexion was as great as forty-five degrees and the apparent shortening marked, the locomotion was difficult. This shortening appears to be largely from an arrest of the growth in the femur, and is always present when the disease occurs in childhood, undoubtedly due in a great measure to the disuse, as the tibia and the foot are also found to be short. The most marked cases of shortening were found to follow those cases of acute osteo-myelitis, in which there is more likely to be an injury to the epiphyseal cartilage. The other form of shortening is due to the high position of the trochanter on the pelvis, which is found in about four-fifths of the cases. The average amount of shortening from this was four centimetres. This condition is due to destructive changes in the acetabulum, and is found to be much more frequent than from dislocation of the head of the femur. In this result the typical position of the leg does not differ greatly from that in dislocation, but the chance of retaining a useful leg is much greater.

[45] Beiträge zur klinische Chirurgie, vol. xxii, part 1, 1894.

### COXA VARA.[46]

Hofmeister, Kocher, Whitman, Kirmisson, all report cases of an affection which was at first thoroughly described by Mueller in 1888, although it had been previously referred to as a lack of firmness of the bone. Rotzer, Scrubel, Launstein and Hoffa have also reported cases. The affection comes either in early youth or about the time of puberty. There is a general weak habit, a limp and waddling gait. The trochanter stands above the Nelaton line. The feet are ordinarily turned out, but in exceptional cases they are turned in. The cases are mistaken for hip-disease, for congenital dislocation, and for fracture of the neck or separation of the epiphysis; also for hysterical coxalgia. Rest in bed, with traction, is recommended in the milder cases during the acute stage; in later stages in children, either apparatus to turn the feet in or out, or osteotomy.

[46] Zeitschrift für orthopädische Chirurgie, 1894, p. 399.

### THE TREATMENT OF TUBERCULAR ABSCESSES BY THE INJECTION OF IODOFORM.

Dr. Kirmisson[47] favors the treatment of many of the abscesses from tubercular bone lesions by this method, and cites cases in which the cure has been accomplished after several injections, varying from two to four or five. He prefers the solution of iodoform and ether to that of glycerine and naphtol. The difficulty of the treatment as practised has been to thoroughly evacuate an abscess cavity filled with caseous pus, which clogs the canula, on account of which it has been found necessary to dilute the contents of the sac, and this has been followed even in spite of great precautions by less favorable results. In the present method this objection is avoided, in that no attempt is made to previously wash out the cavity. Another objection to the other method is the uncertainty of the amount of iodoform which is left in the abscess cavity, and the occurrence in a number of instances by iodoform intoxication. In the method advocated a definite amount of iodoform is used, which is regulated to the age of the patient and the size of the abscess, usually from five to fifteen grammes of a ten-per-cent. solution of iodoform and ether. It is rarely found that one injection is sufficient; and if the fluid is reproduced without a distention of the sac, a fresh injection after four weeks is practised. As a rule, after a few injections the quality of the fluid may be tested, and the prognosis in that way be determined, and the treatment regulated accordingly. If the fluid is found to be true pus, it is necessary to repeat the injections. If, however, the fluid is found to be lighter in consistency, and colored only by the iodoform, it may be considered that the abscess is undergoing resolution, and a fresh injection is not necessary; but it may be inferred that the resorbtion is progressing, and that the cure will be complete.

### INTRA-CELLULAR IGNIPUNCTURE IN THE TREATMENT OF TUBERCULAR ARTHRITIS.

Dr. Kirmisson[48] in this article has described a method of treatment which at one time was attempted, but on account of the unfortunate results has never been received with favor, as in most cases the point of puncture became infected, and the arthritis became acute, which in many cases ended either in amputation or in the loss of life. Since the days of aseptic surgery this danger is avoided, and the author reports several cases in which the method has been employed with favorable results. In the treatment of these the skin is thoroughly cleansed in the same manner as would be the case if an ordinary operation was to be performed, and the fine point of the cautery, heated to a red point, is inserted along the point of the greatest development of the granulations. From twelve to eighteen punctures are made, and the diseased portion is in this way thoroughly reached. The part is then filled with iodoform gauze, the limb encased in plaster, and a certain amount of compression used. He reports several cases in which the results were very satisfactory. At the time of writing there were a number of cases where the puncture was used, and the recovery was rapid considering the ordinary length of time of these cases of arthritis which are not opened. It is recommended on account of its easy accomplishment and being within the reach of most practitioners.

[47] Révue d'Orthopedie, November, 1894.
[48] Union Médicale, No. 51, 1894.

### HISTOLOGICAL CONSIDERATIONS OF OSTEOPLASTY.

Dr. Barth[49] gives the results of further investigations based on sixty-five experiments of operations upon animals. The results of these experiments confirm the opinion that detached fragments of bone do not become vitalized when transplanted, but are replaced by new bone-formations. Ollier's differentiations between autoplasty, homoplasty and heteroplasty are not of importance, as the method of healing is always the same without reference as to whether the transplanted bone is from the same species of animal or not. This becomes devitalized, and a new bone-formation takes its place, the method of substitution being the same without reference to the materials. The foreign substance becomes penetrated and enveloped by a new vascular growth coming from the periosteum and marrow, by which process it becomes in a way rarefied. In this tissue is then deposited a new bone-formation, and by a continuance over some months, the foreign substance becomes entirely replaced by living bone.

The process is not uniformly distributed, as in the long bones for instance the new bone-formation begins in the marrow, meeting some difficulties toward the periphery, but after the process of substitution is complete, the margin of this defect cannot be discovered even microscopically. In the skull, however, the margin of this new bone can be discovered macroscopically by a flattening. The retention of the periosteum over the surface seems to have but little effect, except in such instances of osteoplastic skull resection after the Wolff-Wagner method, in which a larger part of the bone retained its vitality, and only in the cut border is found the necrotic substance. The material which seems most difficult to revitalize is decalcified bone, it being absorbed so quickly that the ordinary scar tissue results. The sponge, however, seems to fill the condition best. Barth reports a number of cases in which the bony defect was filled with a sponge, the skin sutured over the surface and the result desired was obtained.

### EXCISION OF THE SAC IN SPINA-BIFIDA.

M. Robson[50] considers the operative treatment of spina-bifida. From his experience with these cases, he divides them into three classes; the first, in which operations should not be attempted; the second, in which it cannot be considered as necessary; and the third, in which it should be attempted.

He considers that the operation should not be tried when the tumor is large, and there exists a large longitudinal opening into the spinal column, or when there is existing paraplegia, or when there is not sufficient skin to recover the meninges. Also, it is not indicated when the pouch is small, and the skin over the tumor is too thin to protect the tumor. It should, however, be performed when the tumor communicates with the canal through a small opening, or when there is sufficient healthy skin to cover the orifice. When, however, the skin is thin over the most prominent part of the tumor, the operation must be considered as one of considerable difficulty; also, when filaments of nerves are involved in the tumor. It is better to avoid cutting the meninges, but rather to return them to the canal after puncture.

[49] Verhandlungen der deutschen Gelsellschaft für Chirurgie, xxiii Kongress, 1894.
[50] Lancet, September 23, 1893.

### INDUSTRIAL SCHOOL FOR CRIPPLES.[51]

Denmark and the adjoining Scandinavian countries Sweden and Finland have shown the world the need of a new charity. The blind, the deaf, the feeble-minded have for a long time enjoyed the privilege of founded institutions of instruction, but it has remained for the Scandinavians to first develop industrial schools for congenital cripples. The originator of the first industrial school for cripples was a clergyman by the name of Knudsen, of Copenhagen, who opened his school in October, 1872.

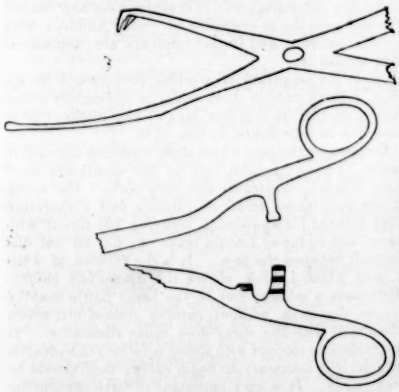
After the International Medical Congress at Copenhagen, an impulse was given to this form of charity, and similar schools were started in Gothenburg, Karlskrona, Helsinborg and Stockholm, in Sweden; Helsingfors, in Finland; Christiania, in Norway. In Christiania a school was started in 1872 by Miss Fischer. An organization has been formed to support and educate and make self-supporting all cripples in the community and surrounding country. That the number of these is not small is shown by the fact that in Finland alone the census showed the existence of 8,000 helpless cripples.

## New Instruments.

### ORTHMAN'S INSTRUMENT IN VAGINAL FIXATION OF THE UTERUS.

BY FRANK M. SHERMAN, M.D., HAVERHILL, MASS.

A DESCRIPTION of the instrument of Orthman, here figured, and the operation of vaginal fixation of the uterus by its use, may interest those of your readers who are not familiar with it. A recent writer in the New York *Medical Record* has given an excellent description of the indications for, and a good method



for the performance of the operation. The use of this instrument, however, greatly facilitates the procedure. The instrument consists of two parts: A sound, which is put into the uterus, and the hooked portion which hinges with it and seizes the outside of the uterine neck. It fastens to the "sound" portion like an ordinary artery clamp.

The operation known as Mackenrodt's vaginal fixation as performed by Martin in Berlin is as follows: the sound is introduced, the companion portion hinged and hooked into the outside of the cervix; then by carrying the handles backward, the uterus is anteverted, and held in that position. The whole uterus is now pulled downward as well as backward, putting the anterior vaginal wall on the stretch, and a vertical incision is made from one or two centimetres below the meatus urinarius down to that portion of the forceps that is hooked into the uterine neck. The vaginal mucous membrane is dissected back on each side; the bladder is now peeled off from its connection with the uterus, its connection to the cervix uteri and vaginal vault cut on each side, and it is then pushed up to the upper angle of the wound with the fingers. A catgut ligature is now passed through the edges of the vaginal incision, at its upper angle, including also the muscular wall of the bladder, and tied. The anterior surfaces of the corpus and cervix uteri now fill the incision, and are fastened with three or more strong silk ligatures, after which the vaginal incision is closed with catgut, with or without an anterior colporrhaphy, as may be indicated. Martin often combines this operation with his well-known anterior and posterior colporrhaphy and perineorrhaphy.

[51] Zeitschrift für orthopädische Chirurgie, 1894, p. 394.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, November 26, 1894, DR. C. F. FOLSOM in the chair.

DR. A. L. MASON read a paper on

MEDICAL TREATMENT IN DIPHTHERIA.[1]

DR. F. M. BUCKINGHAM also presented a paper on

DIPHTHERIA.[2]

DR. GEO. B. SHATTUCK: I have had, in common with Dr. Mason, a pretty large and long-continued hospital experience in reference to diphtheria, and I regret that my time came before we were in sight of anything that looked like a promised land; we were wandering in a wilderness. We had the disadvantage of great difficulties in the diagnosis. It is only lately that we have the knowledge of the Klebs-Löffler bacillus and provision for making cultures and examination of cultures which enables us to differentiate the different classes of sore throats. We had to decide by gross appearances whether a given case was one of tonsillitis or one of diphtheria, and of course we were often mistaken. Our position in reference to treatment was equally unsatisfactory. I can remember very well through many years every year some method of internal medication was suggested or some method of local application was proposed which was going to be almost a specific, and every one of them was a disappointment. I tried a great many of them, and I finally settled down to the general method of support-

[1] See page 145 of the Journal.
[2] See page 147 of the Journal.

ing the strength of the patient by nourishment given in the way best suited to the individual case, by stimulants, by tonics, and in addition to that by keeping the throat as clean as it could be kept without irritating the mucous membrane or exhausting the patient; and it seemed to me, and I still think, that that was the *summum bonum* we could reach under the conditions which then offered themselves to us. With reference to the local treatment, I have used the weaker solutions of peroxide in my later services. I never have used the stronger ones, the fifty-volume solution, so that in reference to it I cannot give any testimony. So much for my experience as far as past history is concerned.

The present situation depends upon the value which further experience gives to the antitoxin treatment. If the triple claims made for it as (1) a prophylactic, (2) a curative, (3) a bactericidal agent, are justified, then the future of diphtheria and our relation to it will be greatly modified. The ease and comfort of treatment will be increased, mortality rates and period of isolation will be greatly diminished. Less hospital accommodation will be required for equal number of cases and for better results.

Having spoken of the past and present, permit me to say one word about the future. If the serum treatment is to become general then comes the very important question and by no means an easy one, what arrangements are to be made for providing the community under a sufficient and proper guaranty with the material for this treatment. It is the business of boards of health to prevent disease. It is not considered generally to be their business directly to provide remedies. Of course, this matter may be regarded from the prophylactic point of view as well as from the point of view of treatment. There is no doubt that in a commercial community like ours, if a thing recommends itself, the commercial spirit will provide for it. But even wanting this, there should be, as we know perfectly well from the difficulties which we have had with reference to vaccine virus — and this would be a still more difficult question — some guaranty and some inspection for such products if they are furnished to the community by private commercial houses, and we should probably have to look to State and local boards of health for such guaranty. This question is a perfectly legitimate one for our consideration.

DR. F. H. WILLIAMS: I have been very much interested in the papers and the discussion; and, if you will allow me, I will try to add a word on a little different side from those which have already been taken up. The treatment of diphtheria may fairly be divided into the local and the general treatment. It is to be recognized, I think, that local treatment is not practicable in very young children; neither is it practicable for laryngeal cases, except so far as you may call the use of steam or calomel fumigation local treatment. I think when the disease is as far down as the lungs or larynx, that it is inaccessible, or when a patient has been sick many days that you cannot expect to do as much by local treatment as in the early days of the disease.

As regards the use of local treatment in the nose, it is very important to bear in mind that much milder treatment must be used there than in the throat. The nose will not tolerate strong solutions; for instance, of hydrogen dioxide, a one- or two-volume, sometimes a five-volume solution is as strong as I am ever willing to use.

As a rule, that is in most of the cases of diphtheria, the disease begins in the throat at points which are accessible to local treatment.

A great variety of remedies have been used locally, and most of those have been mentioned this evening — corrosive sublimate, chlorinated soda, ten-volume solution of hydrogen dioxide, or a weak salt solution or boiled water. It is of the first importance in using local treatment to be sure of the strength of what you use. For example, take chlorinated-soda solution. A year or two ago I wrote ten prescriptions for the official solution of chlorinated soda, which were sent to ten different apothecaries. The solutions were analyzed afterwards; and I found that out of the ten only two were up to the mark, and one or two were something like one-tenth, and one of them one-twentieth, as strong as it should have been, and three of them were not chlorinated soda at all. No matter what is used, it is very important to know the strength of what you are using.

As regards the strong solutions of hydrogen dioxide, at first I used a twenty-five-volume solution. It was then known as the fifty-volume solution, now as the twenty-five, since the last edition of the Pharmacopœia, January 1, 1894. The results seemed to me encouraging, and I have come to the conclusion that the twenty-five-volume solution is frequently a serviceable local application; but in many cases a fifty-volume solution is required for a time. In my opinion the strength of the solution of peroxide of hydrogen to be used depends entirely upon the conditions which present themselves. Sometimes a twenty-five-volume solution is quite useless, and it requires a fifty-volume solution to be of any real service.

As regards the use of these solutions, it is extremely important that they should be used gently and always with the co-operation of the patient. Never use force under any circumstances; it is astonishing how readily you can gain the co-operation of young children with a little patience, and if the solutions are applied as they should be.

As to the frequency with which they should be applied, I think once in three hours is sufficiently often, that is, during the first few days of the disease; after that once in four hours, or less often.

Concerning the pain which these solutions are said to cause. I have a patient now in the diphtheria ward who, I think, illustrates this very well. He spoke of the pain these solutions caused; and I therefore tried without his knowledge spraying his throat with water, and so far as I could make out he did not distinguish between the two. It is the friction of what is used which I think causes the discomfort chiefly. Oftentimes a solution out of the same bottle may be put on the swab without causing discomfort, which when used with the spray does cause discomfort. If one wishes to succeed with strong solutions of hydrogen dioxide, it is necessary to begin early; they should be used gently. It is very important to have efficient instruments; if the instruments are inefficient, the solutions might in many cases better be in China so far as any service they are likely to do the patient is concerned. Solutions should be of known strength and have a sufficient amount of hydrochloric acid. The hydrochloric acid in the hydrogen-dioxide solution is the active agent, so far as germicidal action goes,

rather than the hydrogen dioxide itself. They are both serviceable; the hydrochloric acid should be in small percentage, one-fifth of one per cent. — about as much as there is in the gastric juice.

It is important to know how to apply the solutions, and also important to know when to stop their use. How not to use the solutions of hydrogen dioxide, I think is illustrated very well by some cases which were reported in the *Medical Record* a few weeks ago, cases treated at the Willard Parker Hospital in New York. A solution of hydrogen dioxide in ether, known as pyrozone, was used to make the hydrogen dioxide solutions. The manufacturers, I think, claim that these solutions are nearly neutral; in other words, the important germicidal element is left out, the special property of the hydrogen dioxide itself being the disintegrating power. Another thing which I thought was very unfortunate was the great air-pressure which was used in the atomizer. The air was pumped up to a pressure of eighty pounds, and then allowed to run down to thirty pounds; and when it got down to that point it was again pumped up to eighty pounds. I should as soon think of pumping a whirlwind into a patient's throat as using an atomizer with a pressure of something like thirty to eighty pounds. The pressure of the air should be about six pounds or at most eight pounds. You want just pressure enough to throw whatever you wish to apply so that it will reach the desired part.

Another instance of the way in which one should not use the hydrogen-dioxide solution may be illustrated by the remark of some one in a medical meeting when the acid was spoken of. He said it was easy enough to get rid of the acid by adding bicarbonate of soda, that is, diminish its value as a germicide and decompose the hydrogen dioxide. I know of no applications at all efficient, so harmless as are suitable solutions of strong hydrogen dioxide. It seems to me that they tend to reduce the congestion, and under their use the glandular swelling is more rapidly diminished; they have these good effects beside reducing the amount of membrane and cleansing the throat.

As regards the redness in the throat, the reddest and most prolonged case of congestion of the mucous membrane I have seen, fairly to be called a raw-beef throat, was one where salt solution was used for a number of weeks, and the bacilli also persisted for a long time in that throat.

I think it is important to bear in mind that after the strong hydrogen-dioxide solutions have been used for a few days that cultures should be made, to see whether or not the bacilli of diphtheria are present. As soon as they are absent I think all local treatment may be stopped, as a rule. And, as a rule, in the cases I have followed the bacilli have disappeared before the membrane. There are three or four cases now in the diphtheria ward at the hospital in which bacilli have not been found for some days, although the membrane still remains in the throat.

It is very difficult to compare cases in one institution with those in another, and those in one city with those in another city. For example, the mortality from diphtheria in New York seems to be decidedly less than in Boston.

As regards the length of time during which the bacilli remain in the throat after the use of such treatment as corrosive sublimate, chlorinated soda, ten-volume solution of hydrogen dioxide or one-half per cent. salt solution, I can offer a few figures in 34 cases. In this series of cases the bacilli were still present on the average on the twenty-seventh day of the disease, and absent on the average on the thirty-sixth day of the disease. In another series of cases, 26 in number, where the strong hydrogen-dioxide solutions were used (and these were more severe cases than the others), on the average the bacilli were present on the twelfth day of the disease, and absent on the average on the eighteenth day of the disease, saving, you see, quite a considerable number of days in the cases where the strong dioxide solutions were used.

The mortality is always a very difficult thing, I think, to estimate. Of 18 cases treated within the first three days, the diagnoses of which were not based on cultures, only one patient died, and that was a laryngeal case at entrance. Of 30 cases of diphtheria, the diagnoses of which were based on cultures, two died; one had been vaccinated a few days before and did not seem to be in good condition, and the solution used was found to be much below the purported strength; and one was a child four years old, who took the treatment perfectly well one day, became delirious on the second day, so that treatment was impracticable, and died on the following day.

Local treatment has been recommended and used by Löffler. He presented some cases at the Congress at Budapest in which he used a solution composed of alcohol (64), toluol (36), and creoline or metacresol (1 to 2). As this solution produced a strong burning sensation in children he added to it 10 per cent. of menthol. He reported 96 cases, three-fourths of which were cases of diphtheria; none of these cases died.

As regards general treatment, antitoxin seems to be the thing most promising now as an internal remedy. My experience with it is quite small. I have used it in four cases in which a preventive dose only was used, and in five cases in which a larger dose was used. It seems to me a good way to treat diphtheria would be to inject the antitoxin early and in sufficient quantity, and then use carefully the strong solutions of hydrogen dioxide locally, being very careful to give good food — I think that is of the utmost importance.

Most of the cases, I think, require only a small amount of brandy. I think it is important not to use alkalies, such as the solutions containing lime-water or Dobell's solution (bicarbonate of soda) locally. The alkaline solutions seem to do very little good, and probably they do harm. As regards other internal remedies, various ones have been recommended. Corrosive sublimate does not seem to me to have any good, but rather a harmful effect. Strychnia, in cases of paralysis, or iron in cases of anemia, is serviceable.

Dr. C. F. Withington: The interest in this discussion is increased in my own case from the fact that I take my time of duty in the contagious wards very soon; and I confess I do it every year with great misgiving, from the apparent failure of all treatment in these cases. The other day I looked over the results of the last service which I had, in the summer of 1893, and while the figures are of no special value, I will give them briefly, as they are figures showing the relative frequency of the cases as they presented themselves then.

Contagious Service at City Hospital, in July, August and September, 1893.

Of diphtheria and pseudo-diphtheria there were 116 cases, of scarlet fever 57, and of mixed cases 19; total 192.

Of diphtheria and pseudo-diphtheria, 79 cases were examined bac-

teriologically, the Klebs-Löffler bacillus being found in 59, or about 75 per cent.

This ratio would give, out of 116 cases, 75 per cent. as true diphtheria, or 87 cases, the deaths being 10, or 46 per cent.

Of these, 17 deaths followed intubation, 5 tracheotomy, and 2 intubation and tracheotomy.

Thus, the deaths in operative cases were 24, and in medical cases 16, or 25 per cent.

Scarlet fever deaths 12, or 21 per cent.; in mixed cases 6, or 33 per cent.

From hospital report, one year, to January 31, 1893, the mortality of diphtheria (clinical not bacteriological diagnosis) was 49 per cent., of mixed cases 47 per cent., of scarlet fever 8 per cent.

Bacteriological examinations were not made in all cases, for one reason, among others, that many of the patients entered moribund. Hence it is probable that of the unexamined cases a larger proportion were diphtheria than of those examined. This would increase the total cases of true diphtheria about 87 and would make the actual mortality per cent. lower than 46 per cent. It is generally supposed that the use of the bacteriological method of diagnosis gives a higher mortality of the cases, by diminishing the total number of cases of diphtheria, through the elimination of cases of pseudo-diphtheria. But, on the other hand, it is also true that with the extension of bacteriological examination to mild cases we are getting to recognize as true diphtheria cases not so considered previously. Cases are now admitted simply on the strength of finding the Klebs-Löffler bacillus when the patients are not at all seriously sick. A very high mortality existed among the mixed cases. That mortality was higher than that of diphtheria alone and very much higher than that of scarlet fever. We have cases which come to the hospital with diphtheria and afterwards develop scarlet fever. This is an unfortunate state of things, but one which does exist. During the three months there were eight cases in which patients entered with diphtheria, and from three to thirteen days after entrance scarlet fever developed.

It seems that there is quite a variation from year to year in the percentage of the complications. For example, last year there was almost no post-diphtheritic paralysis; on the other hand, the percentage of nephritis was extremely high. There were twelve cases of albumin without casts (seven in diphtheria and five in scarlet fever cases); but of albumin, with casts (epithelial and granular in character) and the clinical picture of nephritis, 33 in diphtheritic cases, three in scarlet fever and four in mixed cases. Four of these died with nephritis, the cause of death being sepsis. An endocarditis was the complication in eight cases, pericarditis in two cases, chorea in one case, acute miliary tuberculosis in one case. Abscesses of the glands which required opening were present in two cases of diphtheria and five of scarlet fever.

Of the specific things which have been vaunted for diphtheria, even within my memory, there are so many that it is disheartening to go over them. Of course, we all use local treatment for the membrane of diphtheria; and everybody admits, I suppose, that local treatment has its value, for the membrane is to be looked upon as a manufactory of the toxine which is the great source of danger. It seems to me, however, there are two or three things about the nature of the case which suggest a marked limitation to the value of local treatment. In the first place, the amount of membrane is no gauge of the severity of the infection. The two things do not go hand in hand. It is not always the cases of greatest amount of membrane that show the greatest amount of systemic poisoning. In the second place, it is well known that the Klebs-Löffler bacillus does not exist on the surface of the membrane, but is shielded in the trabeculæ of fibrin which constitute the membrane, and nothing applied externally can reach any large number of those bacilli. Third, there is the dangerous exhaustion of a child if he fights hard against local treatment; and, finally, there is the very great importance of avoiding any trauma of the throat. The producing of a wound of the throat is almost certain to furnish a new nidus for the growth of the bacillus and to influence the progress of the disease for the worse. I remember the case of a man last summer who came in having had diphtheria on the 5th of July, being supposed to have recovered from the diphtheria, having gone about his work and preserving the bacillus of diphtheria for a long time afterwards. He had been about his work for two months, and it was found at the end of two months that the Klebs-Löffler bacillus was present. On looking into his throat it was seen that he had had perforation of the soft palate near the uvula, and a small foramen existed, and under that foramen was situated a little bit of grayish membrane which had undoubtedly lain there all the time and been the source of infection. It seemed impossible to get at that membrane to make application or expose it to the influences of the air. It was undoubtedly the fact that the bacilli had been preserved there so long because of the peculiar anatomical relation of things; therefore after considerable hesitation I simply snipped the small band of tissue which closed in the foramen in order to expose this place. Instantly, after this man's two months of health, the membrane spread over the cut portions of the tissue; and, although he suffered no ill effects from it, the sudden leaping into activity of the disease was very manifest indeed. It seemed to me a proper thing to do because the thing had gone on two months, and might have gone on indefinitely. It stopped and the Klebs-Löffler bacillus disappeared after about a week of residence in the hospital; but the great importance of avoiding any trauma was emphasized by that case.

There is one method of local treatment that is free from some of the objections which attach to the swab and to the more violent treatments, and that is the method by irrigation. In the first place, a little patient can be treated by irrigation without being raised up, treated lying on the pillow. The end of a tube can be inserted into the mouth between the cheek and the jaw, and a current of warm fluid, either sterilized water or a solution of boric acid can be allowed to run in and out on the lower side of the mouth. It covers the membrane fairly well; and has the advantage of not being able to produce any violence, not stirring up the patient, washing away a certain amount, if not of the Klebs-Löffler bacillus at least of the other organisms which so often complicate the disease and add to the gravity, and possibly washing away a certain amount of the toxine which may have formed on the site of the membrane.

The contest in the body between the disease and the conservating forces in diphtheria, I suppose, is carried on mostly by the serum. We used to be taught that the micro-organism of diphtheria never went outside the membrane. I believe the bacteriologists tell us now that it sometimes does. But for the most part it maintains its place in the membrane and the damage it does is done by the absorption of toxines into the blood; and it is undoubtedly true that it is not

phagocytosis as much as the effect of the serum of the blood which finally gets the better of the disease. That is one thing which gives considerable promise to the antitoxin treatment. And one of the advantages which appear at once is that unlike so many other treatments it certainly is free of any possibility of harm. There is no record of any injurious effect other than occasional urticaria following the use of the serum injections, and it seems difficult to suppose any injurious effects can result.

Dr. W. H. Prescott: A remark made in my hearing by the late Dr. Doe when I was sick with diphtheria in 1885 under his care, seemed to contain all that was best regarding the local treatment of diphtheria. It was not meant for me to hear, but it was this: He had ordered an application of iron and glycerine, equal parts, and said to the house-officer, "If it irritates his throat do not use it, as it is of much more importance not to cause any irritation than to make the applications to the membrane." At that time I had had no experience with diphtheria; but since then all the experience I have had has gone to to prove the truth of the statement then made, that anything which causes an increase of irritation or pain in the local application is wrong in theory, because the pain causes a diminution of the strength, and the irritation causes the membrane to extend more rapidly after the application than before it. Of the many treatments of diphtheria which have come up each has had its run, and then either something new or the do-nothing policy has taken its place. There are only a few methods that need be spoken of. My experience at the hospital leads me to think that the internal administration of corrosive sublimate or of turpentine and the local use of peroxide of hydrogen are all attended with serious disadvantages. The treatment by sublimation of calomel merits a further trial. The last treatment that I would speak of is the treatment with the continued irrigation with solution of soda or some other bland solution — I think the substance or the solution used is not of so much importance as that it should be mild and non-irritating. This seems to be the best local treatment that has been given to us as yet. About the treatment of post-diphtheritic paralysis of which Dr. Mason has spoken, I perhaps may be allowed to say a word, as I suffered from it myself, and found strychnia, which I took on the advice of the late Dr. Hooper, to immediately benefit the paralysis of the palate, but to have no effect on the other paralyses.

Dr. J. L. Morse: I merely wish to emphasize the importance of not doing any harm in the local treatment of diphtheria. I should class peroxide of hydrogen with the actual cautery, nitric acid, etc., it being less dangerous only as it is less powerful. I should say the only safe local treatment is irrigation of the throat and nose with some unirritating solution. It makes no difference what it is. I also want to call attention to calomel fumigations in laryngeal obstruction. It seems to me I have seen very good results with them; far better than any obtained with steam. As to the persistence of membrane with peroxide, I am certain I have seen the membrane kept up by peroxide.

Dr. Shattuck: Dr. Buckingham's reference to the beneficial effects of sunshine, I think, is an important point. There is a private room at the end of the diphtheria ward at the City Hospital exposed to the south-west where the sun comes in nearly all day long, and I have noticed that all the patients I have had in that room — simple coincidence it probably is not — have done extremely well.

Dr. Mason: It is quite evident that there is a very general unanimity about the measures of treatment in diphtheria which relate to the preservation of strength, and not doing anything harmful to the patient. As to local measures there is an equal amount of disagreement; and I think this in itself shows that it is very fortunate that the time has come when we may be no longer obliged to decide whether we shall use this wash or that, having a means of treatment at hand which will obviate the necessity of so much disturbing of the patient. That, indeed, seems to be a great advantage of the antitoxin method. I noticed that Dr. Buckingham thought feeding by the nasal tube a cruel method, and that his results were unfortunate. That has not been my experience in the few cases in which I have used it, probably in older children. I do not remember ever using the tube in a child under four or five years of age; and I have never found, after two or three times, that they objected to it. It is a choice between using this method and allowing the child to starve if the deglutition paralysis is complete. One child was nourished a month in this manner, and got completely well. It may be a choice of evils, but it certainly is not painful and not cruel, if the child is old enough to understand what is being done. It is necessary in but few cases, of course.

Dr. G. H. M. Rowe: The city of Boston has expended nearly half a million dollars on its hospital for infectious diseases. Other cities in Massachusetts have also added to their general hospital buildings, isolating wards for the treatment of infectious diseases, particularly diphtheria. In the line of the very valuable suggestion made by Dr. Shattuck, it seems to me to be the duty of the medical profession of this city to see that some active measures are taken by the city so that we may have our own antitoxin. Ought not the State to devote at least two per cent. of a sum of money that the city of Boston alone has devoted to a hospital for infectious diseases? It may be premature to propose definite action at this meeting, but I would suggest to the members present that they seriously consider the idea given by Dr. Shattuck, and that it be acted upon at as early a date as practicable. I believe the Board of Health of the city of Boston have decided to devote a limited amount of money to this purpose. It would seem more fitting for the State Board of Health to take action in the matter. I suggest that it be ascertained whether during the early part of the session of the legislature active steps could not be taken to procure an appropriation for this purpose.

## SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

JAMES M. JACKSON, M.D., SECRETARY.

Regular Meeting, Wednesday, November 28, 1894, Dr. G. H. Washburn presiding.

Dr. E. W. Cushing spoke on the

ULTIMATE RESULTS OF THE REMOVAL OF THE UTERUS AND OVARIES.[1]

[1] See page 151 of the Journal.

DR. J. G. MUMFORD read remarks on the

ULTIMATE RESULTS IN THE REMOVAL OF OVARIES AND TUBES.[2]

DR. J. J. PUTNAM: There is only one part of the subject on which I feel qualified to speak, and I do not know that I can throw light upon that. As Dr. Cushing said, there are two classes of cases which one can separate in a general way; those where the ovaries are diseased and where the operation is undertaken for direct or indirect result of the disease, and those where the ovaries are as far as we know healthy. I think it may be said, however, that so far as I know it is a rather difficult matter to determine whether the ovaries are healthy or not. Some years ago I collected and reported a number of cases which had been operated on by Boston surgeons, most of them by Dr. Johnson. I was very much struck with the fact that in many of these cases, although there had been no manifest signs of disease before the operation, the microscopical examination showed that the ovaries were not really healthy. The practical question which presents itself to us most strongly is this, whether the removal of the ovaries is ever a suitable treatment for the clear cases of one of these functional nervous diseases — hysteria, neurasthenia, hystero epilepsy, pelvic neuralgia or insanity. Now I think, to begin with, it is but fair to state what it seems to me is the neurological opinion of the present day on that subject; and I think that would be decidedly against operation. Dr. Mitchell and Dr. Goodell have stated in unqualified terms that they think it practically never justifiable. At a meeting in Washington, Dr. Lusk and Dr. Sinclair of Philadelphia, with Dr. Mitchell, put themselves quite strongly for this position. Dr. Edes reported a number of cases in this last year which gave an unfavorable showing for this operation. There were several deaths, and on the whole the good results were very few. I hold in my hand what, so far as I know, is the latest monograph on the subject, a paper published this year by a physician of Berlin, which takes the position that operation is not a suitable treatment for these diseases, and that the adoption of it is based on an incorrect conception of the nature of the trouble for which it has been used. I cannot but think that there is something to be said on the other side. In the first place, among these cases which I collected there were a good many excellent results. Dr. Richardson speaks of the fact, which we all know to our regret is largely true, that the neurasthenic patients are hard to treat by any such method, and often hard to treat any way. With them the results are not brilliant. Nevertheless, I know a patient who could be called neurasthenic, who suffered from pain in the back of the head, sleeplessness, general distress — a nervous patient; and she obtained extreme relief from the removal of the ovaries, which turned out to be somewhat enlarged and excessively hard. The operation was done by Dr. Elliot. She was not one of the worst types of neurasthenics, however. It seems to me we ought to take into consideration the fact that we do occasionally get very great improvement, and occasionally cures, which if they do not establish an operation on a satisfactory basis are, nevertheless, worth something. The operation is a matter of last resort, or I suppose should be; and if from a lot of insane persons one occasionally gets relief in this way, that is something.

Among the class of cases for which the operation has been done I think we should make distinctions. They are not all equally susceptible of cure, and the severest are least susceptible of cure. More can be accomplished in the relief of vague pains and lesser degrees of nervous disorder than in the relief of well-marked hystero-epilepsy — for example, if of hereditary basis or of insanity or real epilepsy; and yet occasionally true epilepsy seems to be relieved in that way.

The question arises as to the nature or the theory of the operation. If it does good, how does it do good? Is the result a matter of coincidence, or is there any rational basis? In regard to that point it seems to me we are still a good deal at sea. This monograph of which I speak deals with that matter. The writer points out that hysteria is now conceived of as a mental disease, and if that be cured, it is by mental means. This is my own view. He reports a number of cases in which diseases were not cured, but made worse. It seems to me, however, that although these diseases are mental and to be dealt with by mental means, that sometimes an operation becomes a mental means. If a patient's mind has been concentrated on it, looks forward to such operation, that may furnish just the suggestion which is needed to bring about the cure; and it seems to me if we can set aside cases where the ovaries are really the source of local irritation, that is the way the operation is to be regarded. It is not so much the bringing on of premature menopause as it is the inducing of a new state of mind which is more favorable to recovery. We should not deceive ourselves about the matter. Many patients complain, not only about the ovarian pain, but of general pain. Charcot tried to set aside a special form of hysteria which he called ovarian hysteria. Now I think it is acknowledged, no matter how well localized ovarian pain and distress may be, whether it radiates down the thigh in a manner to suggest the crural nerves, nevertheless it is quite capable of being purely a symptom of hysteria or of neurasthenia, just as pain and tenderness in the back may be entirely apart from any local condition; and, therefore, I think, it is important that this fact should be recognized, that if we remove the ovaries, we do so for pain which has its source in the mind. If there is anything to be gained by the operation — and it seems to me occasionally there is — it seems to me that while it is due occasionally to the removal of ovaries which are really more diseased than we can tell from the outside, partly perhaps by the induction of premature menopause, yet it is mainly due to the establishing of a more favorable mental condition. We must ask whether there are not other means to be used; and of late I think a careful study of mental therapeutics, the light thrown on it by hypnotism and suggestion, has enlarged our power of dealing with these patients in this way, and we ought to use such means before we resort to those of surgery.

PATHOLOGICAL SPECIMEN.

DR. CUSHING: Here is a uterus which I removed on Friday from a woman who had had twelve children and had a prolapse. The uterus is badly torn on one side. I was not going to remove it. I was going to do an anterior and posterior colporrhaphy and cu-

[2] See page 153 of the Journal.

rette it. I used the dilator with the slightest pressure, and felt something give a little. I passed the sound, and felt it went far up. Not knowing whether it was going into the broad ligament or thinking it might have gone into the peritoneal cavity I concluded to remove the uterus. That made a short, light operation. If I had not done that what should I have had to do, even if there had been no accident?

In the first place, that cervix would have had to be very carefully repaired; secondly, anterior and posterior colporrhaphy and repair of the perineum would have given an operation four times as long. I show it as a caution, how little effort in certain cases may break through an old thin cicatrix — just a little push, and I had sundered something.

## MASSACHUSETTS MEDICAL SOCIETY.

### COUNCILLORS' MEETING.

A STATED meeting was held at the Medical Library, Boston, on Wednesday, February 7, 1895.

The meeting was called to order at eleven A. M. by the President, Dr. FRANK K. PADDOCK. Ninety-three Councillors were present.

#### APPOINTMENT OF DELEGATES AND COMMITTEES.

On nomination by the Chair, the following delegates to other State medical societies were appointed:

*Maine:* Drs. R. T. Edes, Jamaica Plain; J. F. A. Adams, Pittsfield.

*New Hampshire:* Drs. O. Warren, West Newbury; W. S. Everett, Hyde Park.

*Rhode Island:* Drs. J. R. Bronson, Attleboro; A. M. Pierce, New Bedford.

*Connecticut:* Drs. T. M. Breck, Springfield; A Wood, Worcester.

*New Jersey:* Drs. T. H. Gage, Worcester; C. P. Hooker, Springfield.

Committees were appointed:

*To Audit the Treasurer's Accounts:* Drs. A. D. Sinclair, Walter Ela.

To fill vacancy in Committee of Arrangements, caused by resignation of Dr. Henry Jackson, Dr. Paul Thorndike.

The Committee on Medical Diplomas, through its Chairman, Dr. Forster, presented the following report:

"Your Committee on Medical Diplomas has carefully considered the alleged delinquencies of the College of Physicians and Surgeons of Boston, as set forth in the letter of Dr. William A. White and referred to your Committee for investigation and report, and beg leave to submit the following:

"That your Committee has given a hearing to the Faculty of the College of Physicians and Surgeons, and from the facts there presented and from evidence derived from other sources, recommends that the Councillors of the Massachusetts Medical Society withdraw from the College of Physicians and Surgeons of Boston the recognition voted said College at the meeting of the Councillors held June 9, 1891."

After a prolonged discussion the report of the Committee was adopted, with but four dissenting votes.

The Committee appointed at the last meeting to consider the proposed amendment to By-Law XVII, making the ratio of Councillors one in twelve, instead of one in eight, of the membership of the District Societies, reported through Dr. White as follows:

"The present proportion of Councillors, one to eight, was fixed when the Society was much smaller. It has become a large, unwieldy assembly, numbering 226, and is rapidly increasing. It is altogether too large for a deliberative, executive body, much larger than is appointed for similar functions by corporations, as directors, trustees, legislators and the like.

"If the amendment be adopted, the Council would still consist of 150 members; and even the smallest districts, composed of such small numbers as 21, 28 and 32 respectively, and which have at present three Councillors, would still have two representatives each. Suffolk has 58, an absurdly large representation.

"In the opinion of your Committee, the duties of the council would be more easily and fitly performed if its numbers were reduced to the proposed ratio."

In accordance with the recommendation of the Committee, amended by Dr. Harvey, it was voted that By-Law XVII be amended that it shall read:

"XVII. Councillors shall be chosen by the District Societies, as directed in By-Law XIII, each Society choosing from among the Fellows residing within its district in the proportion of one Councillor to every twelve Fellows, or a majority fraction thereof."

This amendment will come before the Society for concurrence.

## Recent Literature.

*Notes on Military Hygiene, for Officers of the Line.* A Syllabus of Lectures at the United States Infantry and Cavalry School. By ALFRED A. WOODHULL, Major Medical Department, Brevet Lieutenant-Colonel United States Army. Pp. 150. New York: John Wiley & Sons. 1890.

This is a conveniently bound book, and presents the pith of lectures on military hygiene delivered to the class of 1889 at the Infantry and Cavalry School. It undoubtedly will be of value to officers in general. It takes up the following subjects: Selection of Soldiers, Military Clothing, Food, Habitations, Camps and Marches, Sewers and Waste, Water, and Preventable Diseases.

We are glad to see a book of this kind appear which is addressed to line officers, who, as a rule, are lamentably ignorant in reference to matters of military hygiene. It is not sufficient that a commanding officer should recognize that his surgeon should be a man of ability, and that his advice should always be carefully considered. To-day it is necessary that he himself should know not alone the principles of the art of war, but he should be thoroughly familiar with the principles of hygiene. Paragraph 153 shows what the importance of this subject may be to a successful general:

"The German army in the war of 1870–71 is the only one known to have kept its mortality from disease below that from battle. This probably depended upon the shortness of the war, the rapid succession of battles, the trained troops, and presumably upon its exact discipline being exerted for the care of the men as well as in other directions."

This book, conveniently arranged in sections, if placed in the hands of officers will do much towards supplying accurate knowledge. It is a book which would be well adapted for officers of the National Guard and Volunteer Militia.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, FEBRUARY 14, 1895.

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## RADICAL OPERATION FOR INFILTRATING CEREBRAL GROWTHS.

RADICAL operation by excision of infiltrating tumors of the brain (gliomata, glio-sarcomata, sarcomata) has in general been looked upon with disfavor by surgeons, owing to the supposed danger of cutting into cerebral tissue. The teaching of localization has impressed the idea more and more that injury to the motor cortex must lead to permanent paralysis, and that therefore excision of cortex or underlying white matter should be scrupulously avoided. As a consequence of this perhaps partially justified timidity, operations are constantly being done with entirely negative results, so far as permanent relief to the patient goes. The skull is trephined, the dura opened, and the brain exposed, the tumor in a large proportion of cases being found. If the new growth be not definitely marked off from normal brain tissue, in other words if it be of the frequent infiltrating gliomatous type, the dura is replaced, the skin flap sewed, and the patient, often with increasing hernia cerebri, left to die, with relief of pressure symptoms, but with no outlook for prolonged life. Such is the usual routine.

In view of this fact, and the entirely negative result of most of our cerebral surgery, it is a satisfaction to draw attention to two cases recently reported of bolder methods, with results which justified the boldness. One of these is reported by Dr. Alfred C. Wood of Philadelphia, and the other by Dr. Chas. E. Beevor and Mr. Chas. A. Ballance of London.

Dr. Wood's case,[1] in brief, is as follows: Patient, a man, aged twenty-eight, noticed in August, 1892, occasional twitchings of left hand; later, epileptiform attacks, paresis of left arm, occasional attacks of vomiting, headache, double optic neuritis; later, face and leg of same side somewhat affected.

*Diagnosis.*— Probable tumor of right cerebral hemisphere, involving primarily arm centre, progressive in character.

*Operation.*— One and one-half inch trephine opening. Dura purple, tense and bulging, not adherent. Dura opened. Convolutions congested; much bulging. Incision showed what seemed to be a cyst surrounded by altered brain substance, later shown to be a new growth with central softening. Tumor infiltrating in character; no line of demarcation nor evidence of encapsulation. Tumor removed piecemeal by means of knife, scissors and curette. Operation discontinued only when healthy brain tissue appeared to have been reached. Cavity left about the size of a large walnut. Patient made good recovery from ether, with complete left hemiplegia. Sensation not impaired. Rapid improvement in motion of leg. Complete recovery of facial paralysis; some improvement in use of arms.

*Pathological Diagnosis.*— Glioma.

Return of growth soon after first operation. During the interval no headache, no spasms. Vision normal.

*Second Operation* about four months after the date of the first, in May, 1894. Demarcation of tumor and pathological tissue more definite than at first operation. Diseased tissue thoroughly removed. Wound closed without drainage. Immediate effects somewhat more serious than after first operation, but good recovery.

Five months after leaving the hospital the patient walked well without cane. The left leg was somewhat spastic. Arm not much improved. Has had no treatment by massage or electricity. Scalp over seat of operation depressed. No evidence of return of growth. The patient, apart from his physical disability, is perfectly well.

It is easy to forecast the result in this case had the conservative policy been adopted and the tumor regarded as inoperable, which, according to preconceived ideas it was. Instead of rapidly increasing symptoms and inevitable death, the patient, at last report, was a healthy, though partially-paralyzed man. If the growth recurs, as of course, is likely, the wisdom of the operative procedure is in no way invalidated.

The second case[2] of Beevor and Ballance is equally suggestive.

*Clinical History.*—Patient a woman, age thirty-nine, married. Gradual onset of paralysis, involving, in order, right ankle, knee, hip, and extending after lapse of seven months to joints of the right hand, and then to the whole of the upper extremity. Finally, affection of speech; this accompanied by headache, vomiting and optic neuritis. Gradual deterioration of mental condition. Some blunting of sensation on the right side. Face escaped. No family nor personal history of importance.

*Diagnosis.*— Sub-cortical cerebral tumor, not involving the internal capsule.

*Operations.*— July 11 and 17, 1894, being performed in two stages. At first operation, skull opened and dura exposed. Considerable bulging of dura. At second operation, dura opened over as large a space as possible. Cortex bulging especially over upper part of ascending parietal convolution of left side. Cortex mottled, thinned and easily broken through, exposing tumor. New growth found to be continuous with and infiltrating the cerebral substance. Consistence of tumor softer than normal brain substance. Free incision made through cortex over an area of about two and one-quarter inches in diameter, and the included part (brain and tumor) removed by means of a silver spoon. The writers say: "The tumor extended to the medial surface of the hemisphere, and so a part of the marginal convolution and quadrate lobe was removed, the falx being clearly exposed. In this way as much of the tumor as was visible was removed, but as the line of junction of healthy and diseased tissue was so indeterminate, it is not possible to say that the whole tumor was excised; it is, indeed, probable that it was not. At the close of the operation the brain presented a large cup-shaped cavity, nearly two inches deep and the size of half an orange. It is probable that the area removed comprised the upper part of the ascending frontal and parietal convolutions, and anterior part of the parietal lobule and the adjacent portion of the marginal convolution.

*Pathological Diagnosis.*— Round and spindle-celled sarcoma.

*Subsequent History.*— Considerable shock from the operation. Improvement in general condition. Motor aphasia, paralysis of right arm and leg. Two or three days following operation,

[1] Sub-cortical glioma of the cerebrum, affecting principally the arm centre; removal; recurrence of the growth; second operation; recovery. University Medical Magazine, January, 1895, p. 253.

[2] A case of sub-cortical, cerebral tumor treated by operation. British Medical Journal, January 5, 1895. Being "a paper read at a meeting of the Medical Society of London, on November 26, 1894. The patient was present at the meeting in good health."

attacks of clonic spasm involving right angle of mouth. After this, uninterrupted convalescence with improvement of paralyses. A month and a half after operation mental condition much improved. No aphasia; no paralysis of face; could raise right hand to chin; fingers paralyzed. Could walk with slight assistance; movement somewhat impaired at ankle; no movement of toes. Sensation slightly impaired on right upper arm. Condition four months later, at time when paper was read: Speech perfect; no headache; mind perfectly clear; no facial paresis. Right arm improved, some rigidity of joints, various movements impaired, hand-grasp weak. Right leg impaired somewhat in function, but walks without assistance. Sensation normal.

In this case, although it is probable that the entire tumor was not removed, there was complete cessation of symptoms attributable to pressure, improved mental tone and a diminution in the severity of the paralyses.

In view of these two cases, it would seem that a more radical operation for accessible tumors should be practised than is commonly done. It is amply demonstrated by experience that tumors of the brain, and especially the infiltrating varieties of which we are speaking, are fatally progressive in character. It is no less certain that those parts of the brain affected by the new growth are gradually rendered functionless, while new areas are continually being involved. Could the disease be attacked earlier, as soon as a definite or highly probable diagnosis is made, and a radical operation, with complete excision of diseased tissue, done, it is at least possible that the records of cerebral surgery might be brighter. The fear of cutting into the cerebral cortex doubtless often deters both the consultant from urging, and the operator from attempting, an extirpation of the growth. Whatever the relation of the so-called cortical motor centres may be to movements of distant parts of the body, it is certain that it is a matter of indifference whether those centres be destroyed by a new growth or by surgical procedure so far as their particular function is concerned. If an arm or a leg be paralyzed by a cortical or sub-cortical growth, the excision of this area can work no conceivable harm more than has already been effected. On the other hand, such operations as the two cases before us show, may lead to a decided improvement of all symptoms, *including the paralyses*. The hope of ultimate cure is possibly not great, but it offers a definite and the only chance; could a gliomatous tumor be completely extirpated, we know of no pathological law which would in any way necessitate its recurrence.

The two cases quoted are examples of exceedingly bold surgery with brilliant outcome. In both cases a conscientious attempt was made to eradicate all the diseased tissue, regardless of what centres might be included in the process. Sufficient time has not elapsed to make definite statements as to the ultimate outcome of these cases, but the result after a number of months is such as to justify the opinion that, if tumors of the brain are infiltrating and not encapsulated, they are not therefore to be regarded as inoperable. The localization of new growths in the motor cortex along the fissure of Rolando has often been regarded as a contraindication to extirpation, for fear of destroying motor centres with consequent inevitable paralyses. That such paralyses do occur after destruction of certain cortical areas is amply proved clinically, but of the possible restitution of functions after operation in the human subject we know much less. Goltz's[1] most recent experiment is of great interest in this connection. After various more or less successful attempts, he has finally succeeded in extirpating both cerebral hemispheres in a dog, with complete recovery from the operation. The dog lived for eighteen months, and was then killed to satisfy sceptics of the completeness of the original extirpation. During these eighteen months the animal was in no way paralyzed. In fact his motor activity was increased rather than diminished, and his capacity for performing elaborate co-ordinated movements remained unimpaired. The animal's psychical life and other details are of extreme interest, but do not concern us at present. Of importance to the present discussion is the lack of motor paralysis in spite of the fact that all so-called motor centres were destroyed. Of almost equal interest is an experiment of Malinowsky, alluded to by Goltz. This experimenter produced an abscess artificially in the left hemisphere of a dog, with resulting right hemiplegia. After the paralyses were well established he excised the abscess completely. The next day the dog had recovered from his hemiplegia.

It is not the purpose of these remarks to enter into details or theoretical considerations regarding the explanation of these phenomena. The facts at least are positive. To Goltz they seem the final blow to cerebral localization. However that may be, we must welcome conservative investigation, which tends to hold somewhat in check our overwillingness to attribute an excess of function to the cerebral cortex. The cortex is not essential to the performance of co-ordinated movements in the dog — that Goltz has proved beyond cavil — and yet unquestionably the cortex in the dog as in man is in some way associated with movement, probably with its voluntary performance. Malinowsky's experiment is, in its way, as striking as Goltz's hemiplegia apparently cured by excision of the area which previously, as an abscess, had induced the hemiplegia. The bearing of these facts on cerebral surgery is not altogether easy to estimate. Malinowsky's experiment would seem to indicate that an irritant like pus is much more detrimental to functional activity than a definite loss of cerebral substance. This may well have some application in the human subject, and especially to the class of tumors which we are considering. May not a vascular glioma with constant tendency toward softening lead to a much wider disturbance of cerebral function than a loss of an equal amount of brain tissue would do? And may not the character of a new growth be of more importance than has generally been supposed? Malinowsky's experiment renders such suggestions not unreasonable.

Goltz's radical experiment must at least force upon us the conviction that it is conceivable that human beings as well as dogs might get on much better than

[1] Pflüger's Archiv für die gesammte Physiologie, Bd. li.

has been generally supposed possible, with considerable loss of cerebral substance, even were that loss along the motor areas. Paralyses there would doubtless be, at least temporarily. That is a commonplace of observation. We know less of what the future might bring forth. The theories of physiological transference of function and all the problems which that involves cannot find discussion here. We would only suggest that Goltz's dog should be a constant reminder to us that our knowledge of cerebral function is quite in its infancy and that our enthusiasm for localization as a clinical aid, should not blind us to the possibility of its decided modification as a demonstrated fact.

The conclusions to be drawn are (1) that cerebral gliomata and infiltrating tumors generally should be removed surgically and as completely as possible; (2) that this procedure is not contraindicated by the localization of the tumors in the motor areas.

## THE ANNUAL REPORT OF HARVARD COLLEGE, 1893–94.

The annual report of the President and Treasurer of Harvard College is really the annual report of Harvard University. It covers the academic year from September 28, 1893, to September 27, 1894, and contains in addition to a report upon the academic department, reports from the deans of the various schools which make up the university. It is the reports of the Medical, Dental and Veterinary Schools which especially interest the medical reader.

In his personal report President Eliot calls attention to the change which the last fifty years has brought about in the relation of the college to the university, first, in the proportion which the number of students in the college bears to the whole number of students in the university; and, secondly, the relation of the required period of residence for the degree of Bachelor of Arts to the periods required for the other degrees given by the university. The percentage of Harvard College students in the whole university rose from a minimum of 42 in 1844–45 to a maximum of 65 in 1882–83, and from that maximum has steadily declined to about 50 in 1894–95, which is the percentage existing between 1850 and 1856 and again in 1868–69. In the mean time, since 1872 a residence of one year has been required for the degree of Master of Arts, whereas before none was required; between 1869–86 no less than seven degrees have been added to those previously provided for by the university; the required term of residence has been increased for the following degrees: for Bachelor of Science, from a variable period averaging about three years to a fixed period of four years; for Bachelor of Laws, from eighteen months to three years; for Doctor of Medicine, from three terms of about four and one half months each to four full years. President Eliot thus makes it clear, first, that the number of professional degrees has been greatly increased during the past thirty years, and, secondly, that the periods of residence for these degrees have been materially lengthened; and this lengthening of residence is particularly striking in the case of the two large professional schools — those of Medicine and of Law, and is even more striking in the case of the Medical School than in that of the Law School. On the other hand, the practice of admission to advanced standing in the college has lately increased; so that many degrees of Bachelor of Arts are now conferred every year upon persons who have not completed a residence of four years.

President Eliot considers it altogether desirable that the percentage of Harvard College students in the total number of students in the whole university should gradually diminish; for the other departments contain maturer, more advanced, and more serious students, and they should be fed by hundreds of institutions besides Harvard College, although that college should always remain their best feeder. He points out that such trivialities and crudities as still survive in the university naturally harbor in Harvard College; because the college only two generations ago was really a school for young boys. He thinks that gradually the influence of a large body of mature and earnest students who have a serious purpose in view is eliminating from the college itself these inconsistent survivals.

The resignation of Prof. H. P. Bowditch from the office of Dean of the Medical School after a period of service extending over ten years affords an opportunity to review the progress made by the school during that time. In 1883–84 there were 243 medical students; in 1893–94 there were 472 in attendance. During the same period the number of the faculty has increased from 22 to 28 persons, and that of other instructors from 30 to 58; a new building was occupied; the laboratory method of teaching was extended and improved; the activity of the school as a centre of medical investigation was fomented; the compulsory four years' course of study went into effect; the annual receipts and expenses of the school increased by about 75 per cent.

After June, 1896, either French or German must be presented in addition to former requirements for admission to the Medical School. All the professional schools of the university are gradually raising their requirements for admission, but these are in most instances still much too low. The laboratories of bacteriology and pathology have responded handsomely during the year to the increased demand which recent advances in medical science have made upon them.

The Dental School has had a prosperous year, and continues, through the devotion of its instructors, to make the most of limited resources. Though still hoping for a building of its own, it has nevertheless much improved and developed the building now occupied and loaned to the school by the Medical Faculty. Clever work to an increasing extent is done at this school in the treatment of cleft palates and fractured

jaws, and in one instance an artificial nose was constructed to the great satisfaction of the patient.

The Veterinary School has been steadily increasing the number of its students from year to year, and it is now proposed to raise the tuition fee from $100 to $150 a year. The expenses still continue to exceed the receipts, notwithstanding the fact that two of the instructors give gratuitous courses. The school needs an endowment, it needs a pathological laboratory and it needs a few scholarships for poor but meritorious students.

In an address delivered at the opening of the school year, September 27, 1894, Charles Francis Adams emphasizes the claims of veterinary schools and hospitals upon the community in such statements as these:

"An imperfect table shows in the Massachusetts of to-day 26 general hospitals, 21 special hospitals, and 12 church and corporation charities, besides dispensaries, all of them endowed, and containing some 8,000 beds, for the most part free. All the outcome of the last fourscore years — the immensely larger part of it the outcome of the last twenty-five years. A magnificent showing!

"So much for human ills. Now, turn to the other side of the ledger and foot up the column, and see what has been done for our brother — the brute. The total endowment foots up $2,800!

"So I am here to-day to plead, in an incidental way and with the liberally disposed, the cause of our dumb brother. His flesh, too, is heir to many ills; and he cannot describe them. He suffers in silence. Now in our Commonwealth much, as I have shown, has already been given, much is now being given to worthy public uses. We see its results in our daily walks in public buildings, in libraries, in parks, and in the beds of hospitals — it is all good; but, in this giving, why nothing to man's beloved companion and faithful servant?"

Again, another statement from this pithy address:

"In Massachusetts there are stated to be at this time some 200,000 horses and as many neat cattle. I have not looked into the census figures under the headings of dogs and cats. For the clinical treatment of these, if I may use that scientific expression, there exist to-day two public hospitals in Boston, with accommodations for about 65 horses and cows. Under such circumstances it is, indeed, frightful to think of the preventable suffering which must day by day be undergone by domestic animals, as well as the pecuniary loss to man thereby involved. . . . What more acute or greater satisfaction could any man or woman well have or desire, than to feel that through him or her the condition of the animal creation in the community in which the giver lived, had for all time been perceptibly improved and its sufferings alleviated?"

Tuberculosis, diphtheria, anthrax, hydatids, actinomycosis, and the long list of entozoa and parasites common to man and animals all testify to the intimate relation between their diseases, and to the importance of a comparative study of such diseases.

## MEDICAL NOTES.

The Sixth Congress of Balneology. — The sixth Congress of Balneology will be held at Berlin on the 7th of next March. Prof. Oscar Liebreich will preside.

The Successor of Sir Henry Acland. — Prof. J. Burdon Sanderson has been appointed Regius Professor of Medicine in the University of Oxford, in succession to Sir Henry Acland.

Prize Essay on Tuberculosis. — Dr. Herman Weber, of London, has given the Royal College of Physicians $12,500 for the foundation of a prize to be offered every two or three years for the best essay upon tuberculosis.

Cannot be Sent by Mail. — Bacteriologists and pathologists should take notice that by the new postal regulations, "disease germs and matters from diseased persons" are unmailable matter, and cannot in the United States be sent by post.

A Congress on Tuberculosis. — A national Congress on Tuberculosis is to be held at Coimbra, Portugal, beginning on the 24th of March, the anniversary of Professor Koch's announcement of his discovery of the tubercle bacillus.

Small-Pox in Dublin. — There have been 84 deaths from the present small-pox epidemic in Dublin, Ireland. The efforts of the sanitary authorities in dealing with the disease are said to have been far from efficient, owing to the fear of creating a scare, which, according to the *Medical Press*, means that they would rather let the paupers die than run any risk of spoiling the trade of the shopkeepers and lodging-house people.

An International Congress on Childhood will be held in Florence in the spring of 1895. Among the questions to be discussed are, the physical, moral, and mental elevation of children, children's hospitals, the care of deaf-mute and blind children up to the time of their admission into an educational institution, care of poor and abandoned children, reformatories, and vagabondage in its relation to childhood.

The Confusion of Tongues. — The date of the ninth International Congress of Hygiene and Demography, which is to be held at Madrid in 1897, has now been fixed from October 11th to 18th. The Spanish Government has sanctioned the use of no fewer than six official languages, namely, Spanish, Portuguese, French, Italian, English and German. At this rate international congresses bid fair to be excellent object-lessons in the "confusion of tongues." We hope that no hard feeling will be caused by the omission of Russian, Hungarian, Hebrew and Chinese from the list of official languages.

The Treatment of Variola with its Antitoxin. — Passed Assistant-Surgeon Kinyoun has reported to the Supervising Surgeon-General of the Marine-Hospital Service the employment of the blood-serum of a heifer calf, vaccinated four weeks previously, in the treatment of two cases of variola. Fifteen cubic

centimetres of the serum were injected subcutaneously when the cases came under observation, and again after the lapse of eight or ten hours. In one case four injections were made, in the other seven. A careful study of the cases, individually and comparatively, led to the conclusion that the treatment exercised a modifying influence upon the disease, especially upon the eruption. One of the cases died, but it is believed that life was prolonged at least seventy-two hours by the treatment. It is suggested that as the serum appears capable of mitigating the attack of variola it ought to have the power of rendering susceptible individuals refractory to the disease.

SENATOR GALLINGER ON ANTITOXIN AGAIN. — An editorial writer in the *Boston Herald* of February 6th, in speaking of Senator Gallinger's views on the future of antitoxin, made the following statement:

"It is shockingly bad taste that Senator Gallinger, of New Hampshire, displays in speaking slightingly of the medical profession of which he is the sole representative in the United States Senate. In voting an appropriation for the production of antitoxin in the District of Columbia his lay associates in the Senate showed considerably more respect for the science of medicine than the one person in that body to whom the public would most naturally look for an intelligent action on this subject."

The senator writes in defence of his position that he is in good company in his views, having on his side Dr. Hansemann, of Berlin, assistant to Professor Virchow, "the dean of modern pathology." The respect in which Professor Virchow is held by the medical profession, is so great that the announcement of his having been chosen to so important a position as that of the "dean of modern pathology" can hardly excite surprise. The fact that the distinguished "dean" himself holds views on antitoxin opposed to those of Dr. Hansemann, does not seem to have attracted Senator Gallinger's attention.

## BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, February 6, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 54, scarlet fever 51, measles 26, typhoid fever 5. During the week ending February 13th, there were reported the following cases: diphtheria 92, scarlet fever 43, measles 63, typhoid fever 2.

THE LYMAN PRIZE. — The announcement of the award of the Lyman Prize for this year was made by the Secretary of the City Hospital Club at its annual meeting. The amount of the prize is one hundred and fifty dollars in money, and it is open to ex-house-officers of the Boston City Hospital of not more than three years' standing. Six essays were offered. A first prize of eighty dollars was awarded to Dr. John Lovett Morse, of Boston, for an essay entitled, "A Clinical and Experimental Study of the Leucocytosis of Diphtheria." Two second prizes of thirty-five dollars each were awarded: one to Dr. F. A. Higgins and Dr. J. B. Ogden, of Boston, for an essay on "Traumatic Glycosuria," and one to Dr. J. B. Blake, of Boston, for an essay on "An Examination of some Recent Statistics in regard to Ether and a Consideration of Some Present Methods of its Administration." An honorable mention was given to Dr. A. B. Duel, of New York, for an essay entitled, "Leucocythemia, with a Report of Three Cases of the Splenic-Myelogenous Form." The practice of splitting up this prize into minute fractions may be a kindly one, but it seems to us a mistaken practice. It will be surprising if it does not tend to diminish both the number and the quality of the essays offered. The full sum is not an excessive reward for a first-rate piece of work. It can hardly be the object to encourage anything less than first-rate work.

PRESIDENT ELIOT STIGMATIZES FOOTBALL. — The President in the annual report of Harvard College, pays his compliments to football and takes very positive ground against it as an intercollegiate sport; to him it has become perfectly clear that the game as now played is unfit for college use and that it is impossible to make it fit. We have already discussed football enough, and see no reason to change the views previously expressed. If the *players wish* to reform the game, it can be made not only a fit but a very desirable game for college and inter-college use; if they do not reform it, why then it will doubtless be abolished. After our editorials of November 29th and December 6th, which attracted some attention throughout the country, we received a friendly and appreciative letter from Hon. Theodore Roosevelt, expressing in large measure the sentiments since uttered by him at the recent meeting of the Harvard Club in Washington. Mr Roosevelt does not overestimate the value of a few bones; he believes that Harvard College should produce men first, students afterwards, but that the two are compatible; he threatens to disinherit his son should that lad ever be found weighing the possibility of a broken bone against the glory of being chosen to play on Harvard's football eleven. Should young Roosevelt ever incur this mark of parental displeasure, we would feel that the responsibility lay at President Eliot's door, for one extreme begets another. In the mean time President Eliot has fled to Egypt, and the junior Roosevelt is not yet eligible to the team.

## NEW YORK.

ABATEMENT OF DIPHTHERIA. — Dr. H. M. Biggs states that during the past month the number of cases of diphtheria reported has fallen off 25 per cent., and he attributes this result to the use of antitoxin.

THE NEW YORK ACADEMY OF MEDICINE. — At a meeting of the New York Academy of Medicine held February 7th, Dr. Daniel Lewis was elected one of the Vice-Presidents, to fill the vacancy caused by the election in January of Dr. Joseph D. Bryant to the Presidency.

MORTALITY OF NEW YORK CITY. — Notwithstanding the extreme cold of last week there was some decrease in the mortality of the city, the number of

deaths reported being 921, against 952 during the week ending February 2d. The average for the corresponding weeks of the past five years is 879. There were 60 deaths from influenza, a decrease of 11, and the number of deaths from pneumonia also decreased. There was a slight increase of deaths from diphtheria, the number being 39, against 33 in the preceding week.

## Miscellany.

### THE FIRST SYMPHYSEOTOMIES IN AMERICA.

A THOROUGH and exhaustive investigation, conducted by the *Medical News*, in conjunction with Dr. R. P. Harris, seems to confirm the claim of Dr. J. O. Williams, of William Penn, Texas, to the performance of the first symphyseotomies in America.

The first operation was performed on April 29, 1880, on a girl thirteen years old. The child was illegitimate, and Dr. Williams had been urged by the parents to perform an abortion. He refused, and obtained the consent of the parents to allow the pregnancy to come to term on the condition that he would then secretly deliver the child. After a labor of eighteen hours, with no progress, the idea spontaneously occurred to Dr. Williams of separating the pubic bones by means of a tenotomy knife. He did the operation unassisted, and then delivered by forceps a twelve-pound child. A pelvic band was worn for six weeks, and mother and child did well.

The second operation was done in July, 1884. Dr. Williams, being unsuccessful in an attempt at the subcutaneous operation, performed open section. It was, however, necessary to perforate the head in order to effect delivery. A pelvic band was applied, and the mother was up on the twelfth day.

The third operation was performed in May, 1889, upon a negress, who had been in convulsions thirty hours, and had suppression of urine. The mother died, but the child lived.

Numerous letters and sworn statements support Dr. Williams's claim to the performance of three operations; in other words, to having spontaneously conceived and three times performed this operation before any other American surgeon. The comments on the operator and his work made by the *Medical News* are so good that we are glad to quote them:

"He was frankly deficient in preliminary education, and placed in a frightful tangle of most distressing and possibly tragic circumstances, no hint of which we have been able to give. He was surrounded by a set of conditions the dramatic interest of which we have scarcely seen equalled upon the stage. Through it all he has carried himself, and out of it all he has brought himself, with a combination of shrewdness, modesty and probity beyond all praise.

"The chief lesson to be learned from these cases has been summed up in the expression of Dr. Harris: 'In your reports and statistics, wait until you hear from the backwoods.' 'The backwoods' are often deficient in literary qualities, and in many of the arts of modern medicine, 'push' and self-assertion included; but they are often profoundly ingenious, and not seldom exhibit an unchronicled heroism quite equal to any that vaunts itself in populous places."

## Correspondence.

### A NEW JOURNAL DEVOTED TO THE DIGESTIVE ORGANS.

BALTIMORE, February 11, 1895.

MR. EDITOR: — The rise of a specialty in medicine is marked by the appearance of journals especially devoted to it. We are glad to inform you, that the new specialty of "Diseases of the Digestive Organs" is about to have its own publication — the *Archiv für Verdauungskrankheiten*, which will appear in April. It will be published in Berlin, Germany, by S. Karger. The editor is Dr. I. Boas, the well-known author of a work on "Diseases of the Stomach." He will be assisted by specialists in Germany and other countries. The *Archiv* will contain original articles, besides reviews and abstracts of recent literature, and will embrace diseases of the stomach, intestine, liver, pancreas and peritoneum, constitutional diseases and dietetics. Those interested may communicate with the editor or the publisher.

Yours truly, JULIUS FRIEDENWALD, M.D.

### MORPHINISM IN CHILDREN.

BROOKLYN, N.Y., February 1, 1895.

MR. EDITOR: — I am desirous of adding to the clinical literature of morphinism in children. If any reader of the JOURNAL has met with a case, and will furnish me details, I shall appreciate the favor, and give full credit.

Respectfully, J. B. MATTISON, M.D.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 2, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,956,000 | 952 | 315 | 8.69 | 27.94 | .22 | 4.18 | 1.10 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 496 | 166 | 11.20 | 18.60 | 1.40 | 8.20 | .40 |
| Brooklyn | 1,103,000 | 456 | 128 | 9.46 | 27.06 | .22 | 6.60 | .88 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 226 | 61 | 8.80 | 22.88 | .44 | 5.28 | .88 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 88 | 23 | 9.32 | 16.32 | 2.72 | 1.36 | — |
| Cincinnati | 325,000 | — | — | — | — | — | — | — |
| Cleveland | 325,000 | 86 | 32 | 20.88 | 18.56 | 2.32 | 4.64 | 11.60 |
| Pittsburg | 272,000 | 80 | 36 | 10.00 | 27.50 | 3.75 | 5.00 | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 34 | 9 | 23.52 | 2.94 | 5.88 | 2.94 | 2.94 |
| Charleston | 60,145 | 21 | 6 | — | 4.76 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 38 | 18 | 13.15 | 15.78 | — | 2.63 | — |
| Fall River | 92,233 | 45 | 19 | 6.66 | 20.00 | — | 2.22 | 2.22 |
| Lowell | 90,613 | 30 | 12 | 13.33 | 16.66 | — | 6.66 | 3.33 |
| Cambridge | 79,607 | 35 | 10 | 14.30 | 17.16 | — | 11.44 | — |
| Lynn | 65,123 | 17 | 3 | 17.64 | 5.88 | — | — | 5.88 |
| Springfield | 50,284 | 24 | 6 | 16.66 | 12.48 | 4.16 | 8.32 | — |
| Lawrence | 49,900 | 17 | 3 | 11.76 | 5.88 | — | — | 5.88 |
| New Bedford | 47,741 | 18 | 4 | 11.11 | 11.11 | — | 5.55 | — |
| Holyoke | 43,946 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 8 | 4 | 25.00 | 25.00 | — | 25.00 | — |
| Salem | 33,155 | 12 | 3 | 8.33 | 8.33 | — | — | 8.33 |
| Haverhill | 32,925 | 9 | 2 | 11.11 | 44.44 | — | — | 11.11 |
| Malden | 30,209 | 11 | 4 | 18.18 | 18.18 | — | — | — |
| Chelsea | 29,806 | 10 | 4 | 30.00 | 10.00 | — | 20.00 | — |
| Pitchburg | 29,363 | 7 | 3 | 14.28 | — | — | 14.28 | — |
| Newton | 28,837 | 9 | 1 | — | — | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 12 | 4 | 25.00 | 16.66 | — | 25.00 | — |
| Waltham | 22,024 | 6 | 1 | — | 16.66 | — | — | — |
| Quincy | 19,642 | 9 | 3 | — | 33.33 | — | — | — |
| Pittsfield | 18,862 | 3 | 1 | — | — | — | — | — |
| Everett | 16,585 | 11 | 3 | — | — | — | — | — |
| Northampton | 16,331 | 4 | 2 | 25.00 | 50.00 | 25.00 | — | — |
| Newburyport | 14,073 | 3 | 0 | — | — | — | — | — |
| Amesbury | 10,920 | 6 | 3 | — | 50.00 | — | — | — |

Deaths reported 2,881: under five years of age 927; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 389,

acute lung diseases 641, consumption 335, diphtheria and croup 153, scarlet fever 41, typhoid fever 21, diarrheal diseases 21, whooping-cough 15, cerebro-spinal meningitis 12, erysipelas 12, measles 10, small-pox (Philadelphia) 2.

From diarrheal diseases New York 10, Philadelphia and Washington 3 each, Brooklyn, Boston, Nashville, Worcester and Lowell 1 each. From whooping-cough New York 4, Brooklyn, Boston and Worcester 2 each, Philadelphia, Washington, Cleveland and Nashville 1 each. From cerebro-spinal meningitis New York 6, Lynn and Malden 2 each, Worcester and Chelsea 1 each. From erysipelas New York 4, Providence and Nashville 2 each, Brooklyn, Boston, Cambridge and Lynn 1 each. From measles New York 5, Brooklyn and Providence 2 each, Pittsburg 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending January 26th, the death-rate was 18.7. Deaths reported 3,797: acute diseases of the respiratory organs (London) 324, measles 75, whooping-cough 69, diphtheria 56, fever 47, diarrhea 42, scarlet fever 35, small-pox (Birmingham and Liverpool 2 each) 4.

The death-rates ranged from 11.3 in Leicester to 28.0 in Liverpool; Birmingham 19.1, Bradford 14.7, Croydon 15.0, Gateshead 15.8, Huddersfield 16.3, Leeds 20.3, London 17.6, Manchester 23.1, Newcastle-on-Tyne 16.6, Norwich 20.4, Nottingham 17.9, Oldham 19.2, Portsmouth 21.8, Sheffield 18.3, Sunderland 20.4.

## METEOROLOGICAL RECORD,

**For the week ending February 2nd, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—**

| Date. | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather. | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..27 | 29.86 | 27 | 33 | 21 | 52 | 57 | 54 | W. | W. | 21 | 23 | F. | C. | |
| M..28 | 30.14 | 20 | 25 | 15 | 52 | 61 | 54 | S.W. | W. | 22 | 10 | C. | O. | |
| T..29 | 29.90 | 20 | 24 | 15 | 93 | 78 | 86 | N.W. | W. | 7 | 8 | N. | C. | |
| W..30 | 30.05 | 24 | 32 | 16 | 85 | 70 | 78 | W. | S.W. | 5 | 8 | O. | F. | 0.15 |
| T..31 | 30.25 | 24 | 30 | 19 | 76 | 69 | 72 | N.W. | N. | 10 | 8 | C. | C. | |
| F.. 1 | 30.32 | 26 | 36 | 16 | 67 | 70 | 68 | N.W. | S.W. | 6 | 8 | F. | O. | |
| S... 2 | 30.11 | 30 | 34 | 27 | 89 | 75 | 82 | W. | N.W. | 3 | 16 | O. | F. | 0.15 |
| ☞ | 30.09 | | 30 | 18 | | | 70 | | | | | | | 0.30 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall ☞ Mean for week.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 2, 1895, TO FEBRUARY 8, 1895.

The extension of leave of absence granted CAPTAIN REUBEN L. ROBERTSON, assistant surgeon, is further extended fourteen days.

The leave of absence on account of sickness granted FIRST-LIEUT. JAMES M. KENNEDY, assistant surgeon, is extended one month on account of sickness.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 9, 1895.

C. P. BAGG, assistant surgeon, detached from U. S. S. "Mohican" and ordered to the Naval Hospital, Mare Island, Cal.

F. G. BRATHWAITE, assistant surgeon, detached from Naval Hospital, New York, and ordered to examination preliminary to promotion.

JAMES STOUGHTON, assistant surgeon, ordered to examination preliminary to promotion.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, February 18th, at 8 o'clock.

Dr. C. F. Withington will read on "The Antitoxin Treatment of Diphtheria."

Dr. M. H. Richardson on "Intestinal Resection and Anastimosis" with cases.

JAMES G. MUMFORD, M.D., *Secretary.*

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT. — The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place, on Wednesday evening, February 20th, at 8 o'clock.

Dr. J. H. McCollom: "Observations on Diphtheria."

Dr. Richard Hogner: "Intra-Venous Medicated Injections, according to Prof. Guido Baccelli's Method."

JOHN L. AMES, M.D., *Secretary.*

THE AMERICAN ACADEMY OF MEDICINE.— The twentieth annual meeting will be held in one of the buildings of the Johns Hopkins University, Baltimore, on Saturday, May 4, and on Monday, May 6, 1895. The "headquarters" of the Fellows of the Academy and the meetings of the Council will be at the "Stafford."

Members preparing papers are urged to send a copy of the paper, or an abstract, to the Secretary as soon as possible, in order that time may be given him to prepare the press-reports. Members contemplating the preparation of papers, should give notice at once to the Secretary, as the completed programme must be issued early in April.

## HARVARD MEDICAL SCHOOL.

### EVENING LECTURES.

The next lecture will be given on Thursday evening, February 21st, at 8 o'clock, by Asst. Prof. M. H. Richardson. Subject, "A Consideration of Intestinal Obstructions, Acute and Chronic, with Technique of Resections." Physicians are cordially invited.

## APPOINTMENT.

DR. J. L. HILDRETH, of Cambridge, has been appointed by Governor Greenhalge, a member of the Massachusetts Board of Lunacy and Charity, *vice* DR. R. M. HODGES, resigned.

## RECENT DEATHS.

JONAS COWDRY HARRIS, M.D., M.M.S.S, died in Arlington, February 10, 1895, aged seventy-five years.

FREDERIC AUGUSTUS SAWYER, M.D., M.M.S.S., Vice-President of the Massachusetts Medical Society, died in Wareham, February 10, 1895, aged sixty-two years.

## BOOKS AND PAMPHLETS RECEIVED.

Notes on the Sanitary Condition of Mexico. By G. P. Conn, M.D., Concord, N. H. Reprint. 1894.

A *Résumé* of Twelve Hundred Examinations for Life Insurance. By William H. Dukeman, M.D., of Los Angeles, Cal. Reprint. 1894.

The Droitwich Brine Baths as Therapeutic Agents in Various Diseases. By W. M. Tomlins, L.R.C.P. (Lond.), M.R.C.S. (Eng.). Reprints. 1895.

Memento Formulaire des Médicaments Nouveaux (Avec une Table alphabétique des indications). Par Henri Soulier. Paris: G. Masson, Editeur. 1895.

Archives des Sciences Biologiques publiées par l'Institut Imperial de Médecine Expérimentale à St. Pétersbourg. Tome iii, No. 2. St. Petersbourg. 1894.

Blood Serum Therapy and Antitoxins. By Geo. E. Krieger, M.D., Surgeon to the Chicago Hospital, etc. With illustrations. Chicago: E. Colgrove & Co. 1894.

Appendicitis, with Especial Reference to its Diagnosis and the Indications for Operation. By Wm. B. Van Lennep, A.M., M.D., Philadelphia. Reprint. 1895.

Separat-Abdruck aus Klinische und anatomische Beiträge zur Pathologie des Gehirns. Von Dr. S. E. Henschen, Professor in Upsala. Teil III, S. 100-115. Upsala. 1894.

Sur Les Centres Optiques Cérébraux. Par le Dr. S. E. Henschen, Professeur de médecine interne à Upsal (Suède). Extrait de la Revue Générale d'Ophthalmologie, No. 8, 1894.

Laboratory Guide for the Bacteriologist. By Langdon Frothingham, M.D.V., Assistant in Bacteriology and Veterinary Science, Sheffield Scientific School, Yale University. Illustrated. Philadelphia: W. B. Saunders. 1895.

The Disorders of Speech. By John Wyllie, M.D., F.R.C.P. Ed., Physician to the Royal Infirmary, Edinburgh; Lecturer on the Practice of Medicine and on Clinical Medicine in the School of Medicine, Edinburgh. Edinburgh: Oliver & Boyd. 1894.

A Monograph on Diseases of the Breast; their Pathology and Treatment, with Special Reference to Cancer. By W. Roger Williams, F.R.C.S., Late Surgeon, Western General Dispensary and Surgical Registrar, Middlesex Hospital. With 76 figures. London: John Bale & Sons. 1894.

## Original Articles.

### BRIEF MENTION OF A FEW CASES OF NERVOUS AND MENTAL MALADY INVOLVING MEDICO-LEGAL QUESTIONS.[1]

BY IRVING C. ROSSE, A.M., M.D., F.R.G.S., WASHINGTON, D. C.,
*Ex-Professor of Nervous Diseases, Georgetown University; Membre du Congrès International d'Anthropologie Criminelle, etc.*

I PURPOSE to submit for consideration a few cases which I trust may be sufficient to claim the attention of those having interest in forensic medicine. While not so interesting perhaps as the discussion of some current popular medical theory, the record of a few well-selected typical cases occurring in one's own work has, to say the least, more instructive and more immediate practical value.

In the case of disputed wills, where we are often called on to help settle the question of testamentary capacity of the testator, there is among lawyers of the present day a disposition on one hand to invalidate a will on account of the existence of mental states which would not be regarded as insanity from either a legal or medical point of view; while, on the other hand, the tendency is to be governed rather by the provisions of the will itself, and to maintain its validity, even in certain cases of insanity, when the provisions of the deed are rational. Inmates of asylums have made valid wills; and in the case of a testator who committed suicide within three days after its execution, the will was held to be good.

An attorney engaged my services some time since in a matter of the kind where a wealthy retired army officer had died and willed quite a large fortune to the Society for the Prevention of Cruelty to Animals. Searching the medical and military record of the deceased it was found that he had suffered from a specific trouble, and on one occasion was declared insane by a court-martial. This, with other evidence of a damaging kind, led the adverse party to offer a compromise, which was finally accepted.

A case of the same nature was that of a wealthy retired manufacturer from Massachusetts, whom I treated in May and June, 1893. He originally consulted me for obscure nervous symptoms resembling those of locomotor ataxia. A previous case of the kind suggesting diabetes, led to a urinary analysis which confirmed the diagnosis. For a time the patient did well under treatment, but during a summer holiday he fell into the hands of an irregular practitioner, and died suddenly, after willing his entire fortune of several hundred thousand dollars to the Baptist Church. On taking steps to contest the will, an inventory of the past habits of the deceased led to a satisfactory compromise.

The question of civil incapacity may also affect life insurance policies, as it did in the case of one of my patients, a hotel man, who died some time since of melancholia, when the company in which he was insured withheld the amount from his widow. The matter was, however, adjusted through the favorable medical representations that I was able to make.

Divorce and separation also come within the province of the medical legist. In June, 1892, I had a buxom-looking woman for a patient, who had been treated with indifferent success by several New York neurologists. She was one of those strange hysterical cases just along the border-land of insanity, such as I have attempted to portray in a paper read at the Jefferson Medical School a few years since.[2] Inquiry led to the significant fact that she was married to a very old man, and that she suffered from nymphomania. The case resulted in separation and ultimate divorce.

Another case of a very puzzling nature lately occurred in one of my patients whose domestic infelicity and jealous rage showed itself in periodic attacks to destroy fragile objects. On various occasions she destroyed several thousand dollars worth of valuable glass and china from motives of revenge toward her husband, whom she accused of unfaithfulness. After the most rigorous examination I was unable to establish insanity in this case, although a separation seems to have taken place on that ground.

A sociological problem seems to be involved in that of kleptomania, which like many other questions of the kind lies close to civil government. In cases of alleged "shop-lifting" it is often a very difficult and delicate thing to decide whether the alleged act is criminal or the result of an insane and uncontrollable propensity to pilfer, such as sometimes occurs in epileptics, neurotics, and in pregnant or hysterical women. While much is to be said on the side of the shopkeeper, medical intervention is often necessary for the ends of justice. A case occurred several years ago in Washington of two highly respectable ladies who in shopping were arrested and rudely treated for the alleged theft of a small article which a detective did not find on searching their persons. Being released, they had the detective arrested and fined, and brought suit against the firm. One of these ladies I attended through a prolonged attack of nervous prostration, the result of the shock, and when the trial came off I testified in her behalf. The jury saw fit to give her a verdict of ten thousand dollars.

Another question, in which a considerable amount of the currency of the country is involved, occurs in the case of one of my patients who dates his breakdown from the disaster at the old Ford's Theatre. Although he was not visibly or outwardly injured by the accident, yet he claims that from being well and strong immediately before the accident he has become a neurasthenic invalid unable to do business, and claims a money compensation therefor. The matter, being investigated by a Congressional committee, is still in abeyance.

But of all the neurological cases in which knowledge is brought to bear in a medico-legal way those involving the money compensation of invalid pensioners are the most unsatisfactory. From a scientific point of view nothing can be more difficult to adjudicate than alleged disabilities plus the element of politics. It is therefore not to be wondered at that many of these cases are in a hopeless muddle. In a paper read at a meeting of the American Neurological Association at Long Branch in 1877, I attempted to show a few of the errors of diagnosis in such cases.[3]

My principal object, however, in mentioning this paper is to call attention to a case of aphasia, already reported in the *Virginia Medical Monthly* of July, 1890. The case merits particular study for the reason that this man having committed a criminal offence and being sentenced therefor, a question arises as to his

[1] Read at a meeting of the Medical Society of Virginia at Richmond, October 24, 1894.

[2] Clinical Evidences of Borderland Insanity. Journal of Nervous and Mental Diseases, October, 1890.

[3] Journal of Nervous and Mental Disease, November and December, 1887.

responsibility. Many new features of aphasia in its medico-legal relations have lately been treated in an able article by my friend, Dr. Charles K. Mills, of Philadelphia.

Of the great number of claimants for pension that have come to notice, many of the alleged disabilities are about as doubtful in a neurological way as the cases of chronic diarrhea contracted in the Chickahominy campaign in subjects who are fresh-colored, apparently well-nourished, and weigh over two hundred pounds at the present time.

Such cases of malingering are hardly so much to be wondered at as that of a Washington clergyman, who like many of his class gives certificates to quacks and charlatans. This man, in a newspaper advertisement, stated that a certain charlatan had cured him of a chronic disease. Yet, in order to get a pension from the government, this reverend gentleman came to me to be examined for the very disease that he claimed had been so wonderfully cured.

In connection with this subject I call attention to three cases in which the anatomical lesions are somewhat remarkable, although bearing but little on the nervous and mental condition. The first is an acromegalous condition of the right arm following a gunshot injury of the right subclavian; the second is a case of dementia in which occurs the anomaly of a double inguinal and femoral hernia; while the third case, in a man of unsound mind, shows a duopagous penis having a slit in the end with some of the characteristics of a vagina.

In the matter of malingering, the so-called litigation cases of the railway surgeon furnish some of the best examples of a psychological feature arising from the prospect of receiving money compensation for alleged injuries.

The only case of "railway spine" that I have ever seen, among an unusual number of railway injuries observed, was that of a patient who came to me in October, 1888, who stated that his disability was the result of a railway accident at Pope's Creek, Va., in June, 1888, and that he had instituted a suit for damages against the road. The symptoms disappearing rapidly under the treatment, I was obliged to tell his attorney that, unless he soon brought the case to an issue, my testimony for his client would be very weak. On hurrying the matter, the road compromised at seven thousand dollars, and I waited a long time for that "handsome fee" the patient had so often promised. But, alas for poor human nature! I had to bring suit. The plaintiff employed a *sundown*[1] "shyster" lawyer and gave perjured testimony; all of which, however, did not prevent my getting judgment and eventually my money.

Another case of alleged spinal injury was seen by me several times in Fredericksburg, Va., in January, 1893, at the request of the Pennsylvania Railroad Company. I found the patient neurasthenic and hysterical, and with Dr. Morton of Philadelphia, subsequently ascertained that the slight lateral curvature of the spine was owing to asymmetry of the lower limbs. The curvature disappeared on placing a book under the right heel so as to equalize the lower extremities, the right being an inch and a quarter shorter than the left. A settlement being effected in Alexandria, the plaintiff, who walked markedly lame on crutches before signing a release and receiving a check, immediately thereafter walked out of the room without crutches or lameness. She was married shortly afterwards, and, up to last accounts from Dr. Martin of Fredericksburg, was in good health.

A third case of spinal injury in a man, which I have had under treatment since August 11th, was not so fortunate in the way of money compensation. The injury occurred several years ago on one of the western roads, but he failed to secure damages, owing to a legal technicality. At present there is unnatural prominence of one of the injured dorsal vertebræ; he is paraplegic, and has great difficulty with his bladder.

Although the foregoing cases touch medico-legal points that are particularly delicate and obscure, their consideration is hardly invested with the same degree of interest or forensic importance as that of many cases calling for inquiry into the mental condition.

Some time ago I was summoned to appear as a witness before a court-martial assembled at the Artillery School at Fortress Monroe, Va., for the purpose of trying an accused for a grave military offence. After the usual preliminaries, I was asked by the judge-advocate whether or not I considered the accused insane, which question I declined to answer, but stated that I would tell what I had noted in regard to the physical state and conduct of the accused, and the court might draw therefrom its own conclusion. To this there was no objection; when my testimony as to hospital record, insomnia, a horse-kick on the head and subsequent queer conduct, suddenly ended the trial. The accused was declared insane, and sent to the Government Asylum at Washington.

It is, however, not such plane-sailing in many other cases, especially those in which insanity is entered as a plea in extenuation of a crime or misdemeanor, or where the object is to sequestrate a person in order to get control of money or estate, or to bring an end to unpleasant domestic relations, as shown in the following cases:

An employé of the Post-Office Department, being accused of embezzling thirty thousand dollars, his friends tried to establish insanity as a defence, and I was accordingly employed to conduct the examination. A most searching scrutiny into the patient's antecedents, as well as his present physical and mental state, failed to reveal a single fact to build upon. At my suggestion a physician from the Government Hospital for the Insane was called, who came to the same conclusion, when we abandoned the case. But a few days later two physicians were found who certified to "melancholia," when the man was sent to St. Elizabeth, where he remained a few months. The affair blowing over he was released, to become a cashier in a business establishment, which position he managed with all the care and propriety of a man in full possession of his faculties. He died a short time since from an overdose of narcotic medicine.

In another case, of a woman whose husband wished to get rid of her on the ground of insanity, I failed at three different examinations to find the least clue to the alleged condition, and consequently failed to sign a certificate. I learned, however, that the parties were living a cat-and-dog life, aggravated by violent temper on the side of the woman and general worthlessness on that of the husband, who wished, by putting his wife in an asylum, to get control of a few thousand dollars. Subsequently, two doctors certified to this

[1] One regularly employed in a Government bureau, and practising a profession after office hours.

woman's insanity, when the sanitary officer from the police headquarters, whose province it is to look after such cases, proceeded to take her from home. Being an experienced man in such matters, and having personal cognizance of the facts of the case, he ended the matter by refusing to take her to the asylum.

I was called in consultation to a similar case only a few days ago. Exhaustive examination failed to reveal any delusion or mental weak point on the part of the woman, whose tale was the old one of unfaithfulness on the part of the husband, her own ungovernable temper, and consequent domestic infelicity. To all appearances the woman was the saner of the two.

In 1890 I was requested by a prominent attorney in Washington to visit one of his clients, who was in jail under indictment for murder. He was alleged to be breaking down physically and mentally, and for this reason it was desired to secure his release on bail. A series of visits extending over several weeks did not impress me favorably with the case. But in view of the prisoner's evident failing health, albuminuria, insomnia, fibrillary twitchings, pulse 120, and extravagant and incoherent talk, I testified in substance that he was not in condition to undergo trial and that upon further incarceration he would grow progressively worse. The court taking this view of the situation released the prisoner upon bail, which was said to be a case without precedent, since prisoners indicted for similar offences are not bailable. The accused being able to work up a satisfactory defence, was acquitted. He resumed his dissipated habits, and was finally killed by an electric car, but whether the result of accident or suicide has never been determined.

About the same time that this trial was going on, I was called to the Twelfth-Street Police Station to examine into the sanity of a gentleman from one of the neighboring counties of Virginia. It seems that for several days he had been negotiating for most of the valuable property in Washington, and had already bought up all the best hotels, for one of which he gave a cheque for $500,000 on a bank in which he had no money. I was affably received by the prisoner, who told me in a complacent way of his enormous money transactions, and ended by saying that he had been put off a street-car because he had not five cents to pay his fare. When asked why a man of his great wealth should want for such a small sum, he was nonplussed and did not attempt to explain. My chief reason for mentioning this case is that it illustrates so well in a clinical way the delusion of grandeur — a prominent mental characteristic of general paresis, and moreover, a symptom that caused no hesitation in signing the necessary certificate to enable the friends to provide for sequestration and treatment of this unfortunate man.

On October 25, 1891, I was requested to visit the Government Hospital for the Insane in order to examine a naval paymaster, whom it was desired to release by the proper legal proceedings. The patient had been addicted to alcohol and opium, but seemed clear and rational on all points, and even passed a fair examination in mathematics until he got to the binominal theorem, which he tried to explain in a letter to me next day. I produce the letter herewith, because it was one of the principal points upon which I differed with my esteemed friend Dr. Godding, who testified at the inquisition that he thought the handwriting indicative of general paresis. I thought otherwise, for the reason that the patient had broken his leg some time previously and being obliged to use artificial support in walking had contracted crutch paralysis, which he said had so affected the arms and fingers as to cause the peculiarity you here see in the letter. Besides, I had at the time a perfectly sane patient, the Register of the United States Treasury, General Rosecrans, whose chirography was similar. The Episcopal Bishop of Maryland had, moreover, the same peculiarity in a marked degree, and I have never heard of his being insane. The court was evidently of my way of thinking; for the petitioner was released. He led a correct life for some time afterward, but unhappily he took an overdose of laudanum before the days of permanganate of potassium, and died at a hotel in New York.

On January 28, 1893, I visited the district jail with Dr. Godding to inquire into the mental condition of a young man under sentence of death for the murder of his wife. This celebrated case, known as the *Schneider Case*, was attended by great public excitement: the inquisitorial procedure conducted by three judges was a long one, and the testimony was voluminous. From what was learned of the prisoner's antecedents and his condition I did not hesitate to express my opinion that he was a paranoiac. The court, however, thought the prisoner feigning, and allowed the law to take its course. Events following the inquiry up to the moment of the prisoner's execution, as well as the post-mortem findings, corroborated the diagnosis and leave serious doubt in the minds of many persons. A more detailed account of this case is found elsewhere.[5]

On March 26, 1894, I was summoned to testify as to the sanity of a young man accused of arson. From the attending physician I learned that he had never fully recovered from the effects of typhoid fever, that he suffered from sexual hypochondriasis, and had attempted suicide with strychnia. It required but slight inspection to satisfy one of the poor physical condition and mental incoherency of the accused, and of his inability to choose right from wrong. The court certified him to the Secretary of the Interior for confinement in St. Elizabeth, where he remained some time; but after release he again attempted suicide in Alexandria on two occasions, when he was sent to the asylum at Staunton.

July 28, 1894, I testified as to the capacity of a business man of Washington regarding whose property there was considerable family friction. The patient was stuporous, apathetic, and uncommunicative, and as far as I could learn was suffering from alcoholism. I opposed sending him to an asylum for the reason that it would worsen his condition. After an attorney had harangued the jury for some time with the usual antiquated "chestnuts" as to the worthlessness of expert medical testimony in such cases, the defendant was declared insane. But on being allowed to take an outing with a companion he promptly recovered, as I said he would. He was released, and is now attending to business.

Medical witnesses in such cases are often placed in an unfavorable and unjust light by the tactics resorted to by lawyers and approved by the courts. The expert being in no position to reply, the jury and the public hear only what the lawyers have to say. Aside

[5] The Journal of the American Medical Association, February 2, 1895, also Virginia Medical Monthly, February, 1895.

from giving a blurred and distorted character to medical knowledge with which they are imperfectly acquainted, some inexperienced and superficial lawyers avail themselves of the unfair method of quoting antiquated authority in denunciation of expert opinion. While this is an unfairness frequently taken advantage of by lawyers, we seldom hear a medical man say, "A mere judge's opinion, worth nothing, and carries no weight." Yet error is inseparable from human procedure, and lawyers and courts often differ as to questions of fact, and even make mistakes by advocating false theories embodied in legal propositions.

Error and contradiction are not confined to the medical profession alone. Even in such a simple matter as lowering the topmasts of a ship to pass under the Brooklyn bridge, eighteen experienced persons testifying before a commission a few years ago, gave as many opinions, no two of which agreed.

Lawyers, being only human, are liable to error of judgment and difference of opinion. In fact, it is said that lawyers exist as a class only because they see differences in the same occurrences, and judges are found frequently disagreeing upon points apparently less recondite than the mental state of an alleged lunatic. Lawyers would scarcely be prepared to admit that legal decisions are worthless because three judges unanimously on appeal decided a case in favor of the defendant which three other judges in an inferior court had as unanimously decided in favor of the plaintiff, precedents for which may be readily cited.

The object of all legal inquiry is the truth; yet no less a person than Chief-Justice Coleridge of England, speaking of a book of celebrated legal decisions, says that the community would be none the worse off if all the cases therein mentioned had been decided the other way, and Sir James Stephen says that "The criminal law does not deal with truth."

Cases may be cited almost indefinitely showing the disagreements of judges and the fearful muddle that lawyers have made with plain matters of fact. Thus, in King *vs.* The Victorian Railway Commissioners, three judges had to decide the comparatively simple question: "Is the putting of the head out of the window of a railway carriage in motion a reasonable use of the carriage?" with the result that two said yes, and one said no.

Again, four judges dealt with the filing of a bill of sale in Danby *vs.* The Australian Finance and Guarantee Company. That the bill was good three judges held, one for reason (*a*), one for reason (*b*), and one for reason (*c*), each seeing nothing in the reasons of the others, while the fourth judge held that the bill was bad, none of the reasons being, in his opinion, satisfactory. Another instance, even more suggestive, is that of Vagliano *vs.* The Bank of England. After passing through two courts in favor of Vagliano, the case was decided by the House of Lords in favor of the bank by six to two, no two of the majority agreeing as to their reasons. Despite this conclusion, we find on counting heads in all the courts, that Vagliano had eight judges in his favor. Yet he lost his case. To these instances might be adduced differences of opinion even in such a seat of authority as our own Supreme Court, reports from which show as many as thirty-five cases disposed of with as many different opinions, concerning which occur the familiar phrases, "Bench pretty evenly divided," "Reverses its own decision," etc., while, more curious to relate, is the late reversal of the opinion of Mr. Justice White by an Arkansas judge.[6]

In relation to criminal offences committed by the insane, the law, in applying its metaphysical test to determine the responsibility of those whom science states to be physically diseased, acts upon a theory which as a matter of experience medical men know to be utterly and hopelessly false. Yet the judge, to quote the words of eminent authority, sends to the jury a false theory, as in the old trials for witchcraft; the jury acts thereon; the judge tells the executive that the prisoner had a fair trial; the law takes its course, and the case is used to prop up the false theory in subsequent trials.

The certainty with which the law prides itself is, therefore, not shown in the application of the legal test, for a perusal of cases will show that in the matter of insanity the decision of the courts is often a matter of chance, dependent on the predilections of the judge or the sentiment of the hour.

Again, the legal habits of overlooking the physical basis that exists in insanity renders the legal test from a scientific point of view less than half a test. Applied to the irresponsibility of the insane it is wrong in theory, false in fact, cruel in its metaphysical conception, and unreliable in its practical application.

I am fully aware that the foregoing views will not meet the unanimous approval of my legal friends. But, let me ask, is the present method of procedure the best that keen legal insight and contemporary science can devise?

The great advance of medical knowledge in the last century, slowly pulling the law along in its wake, has even convinced learned judges of the absurdity and injustice of condemning innocent old witches to death, and as legal fictions disappear the time may come, we trust, when no intelligent lawyer will speak of "the vicious principle of considering insanity as a disease" or be guilty of quoting from an obsolescent volume, as some of them are fond of doing, that old chestnut of a down-East judge, who throws general discredit upon the opinions of medical experts with a force of judgment only equalled by that of Jack Bunsby.

## CASES OF PREGNANCY COMPLICATED BY HEART DISEASE.[1]

BY GEORGE G. SEARS, M.D.

CARDIAC lesions as a complication of pregnancy have not as yet received the attention in text-books which their importance demands, nor have the best methods of treatment in this condition been adequately discussed in them. This oversight has been partially corrected by monographs upon this subject, as well as by a number of papers which have appeared in the periodical medical press within the past few years, but as their conclusions have been chiefly drawn from cases which presented either very serious or unusual features, the gravity of the complication seems to have been, from the point of view of immediate results, as much overestimated in the latter as underestimated in the former. It is not an unusual experience in out-patient work for women to apply for relief of cardiac symp-

[1] To be published in the Sixth Series of the Boston City Hospital Medical and Surgical Reports.

[6] In the celebrated pension case of Long *vs.* Lochren, the decision of Judge Cox has lately been reversed by Judge Bradley.

toms whose lesions were undoubtedly present during one or more pregnancies and yet were the cause of no serious manifestations or were even unsuspected by both the patient and her medical attendant. A number of these cases have been selected for a brief report owing to the fulness of the records in several important points, including two which are given in somewhat fuller detail, who sought advice during the early months of pregnancy and whose course has been followed up to the present time.

CASE I. Mrs. P., thirty-five years old, pregnant for the fourth time. Except for vague pains in muscles and joints no rheumatic history was obtained and her general health had always been good. The birth of the first child was followed by mania from which she recovered after an illness of three months. The second and third pregnancies were uneventful, but early in the fourth she began to grow somewhat short of breath, and toward the end of the fifth month she noticed that her feet and vulva were swollen. On examination the heart was found to be laterally enlarged but its exact limits could not be accurately determined owing to the great development of the breasts. A very rough systolic murmur, loudest at the third left costal cartilage, was audible over almost the whole cardiac area. At the apex the first sound was somewhat muffled, but no other modification was noticed. The second pulmonic sound was markedly accentuated and a few fine râles were heard at the bases of both lungs. The urine was repeatedly tested but was always free from albumin. Her diet and mode of life were regulated so far as her circumstances would permit, and digitalis and general tonics were ordered. Her condition, if anything, improved somewhat during the next four months, although the edema still persisted. Labor came on at term and lasted about forty-eight hours, but the early pains were infrequent and so slight that they caused but little inconvenience. Active labor lasted but an hour and a half, and as the head steadily advanced and her condition remained good no interference was thought necessary, but ether was freely given. Except towards the close of labor, when it rose to 74, the pulse remained at 60, but it was soft and easily compressed. After the birth of the placenta it fell to 56. The post-partum loss of blood was normal. An examination of the heart made two weeks later showed the following condition: the apex was in the fifth interspace fully an inch outside the normal line, while the area of cardiac dulness extended two fingers' breadth to the right of the sternum. The same rough systolic murmur was still heard all over the precordia, with seat of maximum intensity over the sternum opposite the third costal cartilage. Toward the apex the murmur became much softer in character and could be followed outward into the axilla. The pulmonic second sound was accentuated and reduplicated. Her strength returned slowly but she insisted on getting up during the third week. Although complaining of dyspnea in climbing a few steps she remained fairly comfortable during the next three weeks, when she "took cold" and began to cough, raising thin, white sputum somewhat tinged with blood. Dyspnea so increased that she was unable to lie down. Her expression was anxious and the extremities slightly cyanotic. The chest was filled with medium and coarse moist râles and there was slight dulness at both bases. The pulse was irregular and weak. This condition persisted for about two months, with occasional remissions or exacerbations, one or two of the latter being so severe that stimulants were given hypodermically. She then began to slowly improve and is now able to attend to her lighter household duties, but dyspnea is still so marked that the ascent of a flight of stairs is attended with considerable difficulty. The baby at birth was a well formed and apparently healthy child, weighing seven and a half pounds, but it possessed no vitality and died of marasmus when four months old. The third child alone survives.

CASE II. Mrs. H., aged twenty-eight, had rheumatic fever about a year before the birth of her first child, six years ago, and again about four years ago. Her second child was born four years ago, and a few months later cardiac symptoms developed. Between this time and the birth of her third child, last October, she had three miscarriages artificially induced, all under four months. She first came under observation at the beginning of her last (sixth) pregnancy, complaining of palpitation, dyspnea and precordial pain. There was considerable lateral enlargement of the heart, a systolic murmur at the apex transmitted outward, and accentuation of the pulmonic second sound. There was neither albuminuria nor edema. Except for a slight increase in the dyspnea and a little swelling of the feet, she passed through her pregnancy without noteworthy occurrence. She was attended in her confinement by her family physician, who extracted the child by forceps after a seven hours' labor, without ether, delivery being followed by a pretty profuse hemorrhage. Four days later she had an attack of syncope, but without losing consciousness, and during the following week she had several similar attacks. Under a tonic regimen she has slowly improved, the murmur has diminished in intensity, and the heart itself has somewhat regained its tone, but she still complains of dyspnea, and seems to be living at a lower level than before the occurrence of this last pregnancy.

In both cases the history of previous easy labors, the comparatively slight severity of the cardiac symptoms and the absence of albuminuria, gave every reason to expect a favorable issue under treatment indicated for uncomplicated cases of failing cardiac compensation, and the immediate result justified the expectations. When, however, cardiac symptoms show a tendency to increase in severity, and the patient's condition begins to cause anxiety, it is questionable how far the expectant plan of treatment is justifiable in meeting a complication which, under such circumstances, is fatal in thirty-five or forty per cent. of the cases. In other complications of pregnancy, like uncontrollable vomiting or eclampsia, where the presence of the fetus is the immediate cause of danger, the necessity for emptying the uterus before the patient's condition becomes desperate is generally recognized; yet in both these conditions recovery, if it takes place, is complete, and there is but one risk to consider, while in heart disease, not only is the present danger very great, but, if this be successfully passed, the prolonged strain upon the weakened cardiac muscle is apt to permanently incapacitate the patient in a greater or less degree for any form of active life, and be the starting-point for a chain of symptoms which end in premature death. With two dangers to be considered, a remote as well as a present, it is difficult to understand why the same treatment should not have been

considered equally applicable to cardiac complications, unless it be that the induction of labor has usually been so long postponed that death has been wrongly attributed to the operation, when of necessity it was the only result to be expected. Within the past year a prompter resort to radical measures has been urged with more or less emphasis by several writers. Seolowjew,[2] for example, says that when ordinary methods fail, labor should be induced even in desperate cases. E. Leyden[3] is equally positive, and says that the results are so bad because it is postponed till too late. Allyn,[4] in speaking only of mitral stenosis as a complication, says that the frequent occurrence of spontaneous miscarriage or premature labor is "an indication that it should be induced when dangerous pulmonary symptoms persist in spite of suitable treatment." Webster[5] shows more conservatism in apparently taking the opposite view, when he declares that "the quiescent condition of pregnancy is less dangerous to the heart than the disturbance brought about by the emptying of the uterus," but gives no directions for continuing this quiescent state beyond the ninth month. If he means, as he probably does from a later statement, that when a patient's chances have become desperate, induced abortion may only hasten a fatal result, his position deserves little criticism, but should rather be emphasized, in order that she may be prevented from drifting into a condition where death is almost inevitable, no matter what is done.

So many outside considerations come up when the treatment of this complication is discussed, that the main issue becomes clouded, namely, that labor, so far as its effect on the heart is concerned, is primarily a succession of muscular efforts, whose length and severity, unlike voluntary exercise, can only be approximately estimated at best, and which follows a period in which the strength of an already weakened heart is steadily deteriorating. Unfortunately, the welfare of the mother cannot alone be thought of, since a second life is at stake for whose sake greater chances must be taken; but it is an open question if more consideration has not been given to the child, without benefit to either, than is warranted by facts. It is generally conceded that the expectation of life in children born of women with serious heart lesions is decidedly impaired; but the amount of impairment cannot be definitely given until more facts are at hand, reporters of cases not having sufficiently recognized the importance of giving the fate of the children. Beside the two given above, I have notes of five other cases which are complete in this respect, two of which have been reported in detail elsewhere, and will only be referred to briefly here.

CASE III. Mrs. C., thirty-two years old, suffering from double mitral lesion probably following chorea in childhood, has borne six children at term, and miscarried once at the fourth month. Excepting the first, marked cardiac symptoms were present in all the pregnancies. The third child alone survives, the others all dying within a few months after birth.

CASE IV. Mrs. B., thirty-six years old, had mitral regurgitation, probably due to an attack of acute rheumatism following the birth of the third child, but cardiac symptoms were first troublesome during her fifth pregnancy. The child lived but eighteen months. The sixth pregnancy terminated spontaneously at the seventh month.

CASE V. Mrs. M., aged thirty-five, vi-para, had chorea when fifteen years old, and rheumatic fever a year or two later. Marked symptoms of failing compensation appeared first during her fifth pregnancy, although there had been a little edema and dyspnea during the previous four, but not of sufficient consequence to require the services of a physician. The sixth child was born about three weeks ahead of time. The last two children lived but a few months.

CASE VI. Mrs. T., age thirty-two, iv-para, began to complain of dyspnea shortly after her marriage, eleven years ago; but cardiac symptoms did not become severe until her first pregnancy, eight years ago. Since then she has had three children, the last being born about one year ago. Attacks of syncope, dyspnea, edema of legs, cough, with sputum occasionally tinged with blood, were present in all her pregnancies, while in the latter part of the third she was unable to lie down. In all, menstruation recurred regularly during the first eight months, and after delivery hemorrhage was always so profuse as to "alarm the doctor." Forceps were used in every instance. The first child is living, but in the last stages of consumption. The second child lived three months, and died of convulsions. The third child, now five years old, is strong and well. The fourth died of some acute pulmonary trouble when two months old.

CASE VII. Mrs. H., aged thirty, iii-para, had an attack of rheumatism when twenty years old, and has since suffered from dyspnea on exertion, which has increased in severity since the birth of her first child about four years ago. The first pregnancy passed without noteworthy increase in symptoms until two or three weeks before the birth of the child, when she had a severe paroxysm of precordial anxiety and pain with loss of consciousness. These paroxysms have occurred at irregular intervals since.

The labor was very long, but terminated spontaneously, and was followed by a hemorrhage. The baby lived but fifteen minutes, the only assignable cause of death being the length of the labor. During the second pregnancy there was no increase in the dyspnea and no edema; labor was short, and the child is still living. She again became pregnant last spring, when the cardiac symptoms increased in severity and were accompanied by vomiting. As in the last case, the menses, though scanty, recurred regularly and led to a mistake in diagnosis on the part of the attending physician, whose efforts to relieve a congestion of the womb resulted in a miscarriage at the fourth month. At the time of examination the heart was found to be somewhat enlarged and a soft, diastolic murmur was heard at the fourth left costal cartilage transmitted toward the apex. At the apex the first sound was rough.

Leaving out of consideration the four cases of abortion, either criminally or accidentally induced, as well as the child whose death was probably due to a too protracted labor, these seven women were collectively pregnant thirty-one times. Of the fifteen children born before the cardiac symptoms became so severe as to require the advice of a physician, twelve are living and three are dead, while as a result of the sixteen other pregnancies but three children still survive, of whom one has but a few months more of life. The sharp contrast between the two sets is so marked that it can

[2] Peterab. med. Woch., Russ. med. Lit., i.
[3] Zeitschrift. f. klin. Med., vol. xxii.
[4] Univ. Med. Mag., April, 1894.
[5] The Hospital, June 9 and 16, 1894.

scarcely be due to mere coincidence, and should anything like the same mortality rate, as seems not improbable, be found in a sufficiently large number of cases for definite conclusions to be drawn, much of the force of the most serious objection to an early resort to induction of labor would be lost.

In a paper on the same subject, published about a year ago, among other conclusions the following propositions were formulated: that the frequency of miscarriage and the doubtful fate of the child make the welfare of the mother the more important consideration in deciding the question of abortion; that the necessity for inducing abortion is very probable in the presence of grave symptoms in the early months, or of a progressive lesion, or of a history of great danger in the preceding pregnancy; and that when the necessity becomes apparent, the sooner it is done the better. Later experience, both with these cases and with a number of others, who applied for relief from cardiac symptoms dating from some previous pregnancy or shortly after labor, but whose records are, I regret to say, too incomplete to report here, has strengthened rather than weakened this opinion; but the special points which I wish to emphasize are the necessity for classifying heart-disease among other conditions in which the presence of the fetus is the immediate source of danger, in order that in this complication the same chance of recovery may be given to the mother which is accorded her in the so-called uncontrollable vomiting of pregnancy or in eclampsia, and that the remote effects of pregnancy and labor, as shown by impaired cardiac compensation, should receive the consideration which their importance demands in deciding the question of the induction of labor.

## CÆSAREAN SECTION, WITH THE REPORT OF A CASE.[1]

BY GEORGE HAVEN, M.D.

PELVIC deformity begins when the true conjugate falls below four inches, and the difficulty of delivering a living child through the pelvis at term increases as the diameter decreases, and becomes impossible when the conjugate measures three inches or less. The size of the child in all cases should be estimated so far as possible, and of special moment is the size, hardness and compressibility of the head. Delivery is accomplished in the lesser degrees of contraction by nature, forceps or version. In the greater degrees of contraction three methods are to be considered: first, emptying the uterus during the early months of pregnancy; second, induced labor at the seventh, or eighth month; and, third, the major obstetrical operations, namely, craniotomy, Porro, symphyseotomy, and Cæsarean section.

I do not wish in this paper to consider the subject of abortion, and shall confine myself to induced labor and the major operations. It is clearly our duty to select the operation which offers the best ultimate result for mother and child. How far respect for fetal life should determine the method is a matter to be decided by the family, operator, and in Catholic families by the priest. It is, however, safe to say that no operator will destroy fetal life if other methods of procedure offer which are equally, or almost equally, safe for the mother.

[1] Read before the Obstetrical Society of Boston, December 15, 1894.

Induced labor is by no means an absolutely safe operation for the mother, and the fetal mortality is very large. In twenty-three cases of induced labor, at the Boston Lying in Hospital, 19 children died. Selecting the cases which are on the records subsequent to the introduction of antisepsis, or, in other words, the cases occurring since 1885, we have one maternal death in 12 cases or a mortality of between eight and nine per cent. Dr. Theodore Wyder, in an exhaustive article in the *Archiv für Gynækologie*, Band 32, reports 225 cases operated upon since the introduction of antisepsis. Of these 12 died, or a mortality of 5.3 per cent.; and the fetal mortality in these cases was a little under 50 per cent. This is distinctly less than Winkle's estimate of 66 per cent. for the fetus. With our increasing knowledge of asepsis, I have no doubt that the maternal mortality can be reduced, but fear that it can never be eliminated. The fetal death-rate, with improved methods of caring for the child, may also be reduced but *must* remain very high.

Craniotomy is fatal to the child, unless we accept a report which comes from the West, where the brain substance was replaced and the child lived. The maternal mortality, quoting once more from Wyder, is about five per cent., and his table is made up of the following cases: 104 cases are from the Berlin Polyclinic, with six deaths, or a death-rate of 5.8 per cent.; 35 cases are from the Halla Clinic, with two deaths, or a death-rate of 5.7 per cent.; 76 cases are from the Leipsic Polyclinic, with four deaths, or a death-rate of 5.3 per cent.; in all, 215 cases with a mortality of 5.6 per cent. In the Lying-in Hospital there have been 15 perforations with one death, or a percentage of about six. The latest figures by Leopold place the mortality at two per cent.

I shall only speak of Porro's operation in passing, as the mortality is so high that I think it will only be undertaken in cases where hemorrhage cannot be controlled, or where for some other reason the Cæsarian section is contraindicated. The mortality in the United States, quoting from Dr. Robert P. Harris, is 61 per cent.; in Italy it is between 38 and 50 per cent., and in Germany it is claimed to be only a little above 10 per cent.

Symphyseotomy has already been spoken of by Dr. Jackson, and his paper has so exhaustively and so ably treated the subject that it leaves nothing for me to add. This brings me to the subject of my paper, Cæsarean section.

Schrœder says, that the first authentic case of Cæsarian section was that of Trautmann in 1610. Much greater antiquity has been accorded the operation, but apparently without sufficient data. The section is indicated when delivery by the natural passage is impossible, or of extreme danger to mother and child. This may be caused by deformity of the pelvis, intro-pelvic growths, or advanced maligunant disease of the cervix. For many years the mortality, 80 per cent. and over, which attended the Cæsarean operation, led to its practical abandonment, and we have to thank asepsis and Sänger for its present splendid showing. The former, as through it the danger of opening the abdominal cavity has been reduced to a practical no per cent.; and the latter for teaching us how to do the operation, and for dispelling the belief that, owing to the contraction and relaxation of the organ, suturing the uterine wound was not to be thought of.

Much has been written as to time of election, whether

we should wait until the pains begin, and also how much dilatation should be present, or whether we should operate at our convenience any time during the last days of pregnancy. Dr. H. C. Coe believes that the best time to operate is before labor has begun, and his opinion is strengthened by that of Dr. Robert P. Harris. Personally, I can see no object in waiting, and believe that results will be better if we thoroughly prepare the patient for operation, and then operate at our convenience. The argument that we may have a dangerous hemorrhage in cases where labor has not begun, is, I think, false; and one of the strongest proofs to the contrary is to be found in cases where, for one reason or another, the uterus is emptied during pregnancy but before the advent of labor. There are hundreds of such cases; and I have never yet heard of one where the organ did not contract, and of very few where hemorrhage, to any alarming extent, was present. The other argument against the operation of election was that the cervix, being undilated, would not permit free drainage. I believe this to be also a mistake. The cervical canal is always open, and is usually, during the last few days of pregnancy, so soft and dilatable always with multipara that the point of the finger can be introduced through it. This certainly gives sufficient outlet for all fluids, and moreover, a strip of gauze can be pushed from the uterine cavity down through the cervix into the vagina, giving all the needed drainage.

One other point, about which much has been written, is whether the uterus should be opened outside or inside the abdominal cavity. Both methods have warm supporters. I think, however, that the concensus of opinion is that it should be opened outside, Dr. H. A. Kelley to the contrary. Many cases where the uterus has been opened inside have later, on account of hemorrhage, necessitated the removal of the organ to the outside.

The cleanliness of the abdominal cavity is much better cared for when the uterus is outside; in fact, it need not be in the slightest degree soiled. The patient should, if possible, enter the hospital several days before the operation. The total amount of urine passed in twenty-four hours should be noted, and a careful examination of the secretion made. If there is any diminution in the amount, she should be encouraged to drink as much water as possible, and should have some mild diuretic. The skin must be in good condition, and hot baths are to be recommended. Her bowels must receive careful attention, and the rectum should be emptied by enema the day before the operation. The abdomen is to be scrubbed with green soap and peroxide of hydrogen, to be covered with a soap poultice for two or three hours, to be followed by a corrosive one which remains in position until the time for operating. The vagina is to be scrubbed with soap, and washed out with peroxide of hydrogen and corrosive sublimate, and lastly packed lightly with gauze soaked in peroxide. The bladder should be emptied just before the operation. Four assistants are needed; one to etherize, one to handle instruments and sponges, one to hold the uterus, and one to take care of the baby. The instruments are to be sterilized, and the assistants' hands and arms treated as in preparing for any laparotomy.

The incision is in the linea alba, and should be long enough to admit of easily taking the uterus outside. Hot sterilized towels are placed around the organ, and, if possible, the placental site determined; if it cannot be, an incision should be made through the uterine wall, in the median line, just below the top of the fundus, and extend down for about three and a half inches. A rubber ligature is placed lightly round the uterus at the cervical junction, not to be used save in case of grave hemorrhage. One assistant places both hands around the uterus, and in this way controls hemorrhage. If the incision exposes the placenta, it should be rapidly separated, and the child removed by grasping it around the neck, and given to an assistant.

The uterus is now freed from any remnants of placenta and membrane. Deep sutures are introduced about half an inch from the wound, and going down to the mucous lining of the organ, but not through it, and between these superficial sutures unite peritoneum to peritoneum. The number of sutures will depend upon the length of the incision, and will vary from three or four to eight. The material best suited for this purpose is braided silk, and should be of a size sufficient to insure against breaking. The abdominal wound is to be closed with silk or silkworm-gut; ergotine (five to ten miuims) is given subcutaneously, and the patient placed in bed. There is usually very little nausea following the operation, and in many cases the mother is able to nurse her baby.

Before reporting the case upon which I operated I wish to speak of the statistics of the operation. The result of Sänger's operations from 1880 to 1888 showed a mortality of 17.9 per cent. A report comes from Leipsic of 38 cases with three deaths, or eight per cent. I have collected 40 cases, operated upon in the United States since 1888, and of these nine died, a mortality of 22½ per cent. Of the nine deaths one case was operated upon without any antiseptic precautions; one had been in labor six days, and had had forceps and version tried; another had advanced malignant disease, and was dying at the time of operation; still another had been in labor two days, and had had forceps and version. This is true of a fifth, and the sixth death was in a case where labor had lasted five days and where the woman was septic. These cases should not properly be counted. If we omit them, we have three deaths in 34 cases, or a death-rate of between eight and nine per cent. It is also interesting to note that all cases operated upon in hospitals recovered, save one, and this was the case of advanced malignant disease. I think we can then assume that in all properly selected cases the mortality is not greater than nine per cent., and that in cases operated upon at the time of election, in hospitals, the mortality will be very much below nine per cent.

We then have Cæsarean section with a mortality of nine per cent., craniotomy with a mortality of five per cent., and induced labor with a mortality of five per cent.; in other words, Cæsarean section is, taking all cases, nearly twice as dangerous for the mother as craniotomy or induced labor. Undertaken in proper surroundings and by skilled operators, I doubt very much whether the mortality is greater, and the fetal mortality is wonderfully less.

It is a pity that statistics are so disappointing. Men prove whatever they wish, and in collecting statistics take many cases which should be omitted; for instance, if it is wished to prove that craniotomy or induced labor, is much safer than Cæsarean section, we have but to include all the cases of which I have spoken as unfit for the operation, our mortality immediately rises and the proof we wish is forthcoming.

I shall end this paper by reporting a case which I had the pleasure of operating upon in July, 1894.

E. F., born in England, thirty years old, of slight build, weight about one hundred pounds, entered the

| Case. | Operator. | No. Preg. | Previous Operations. | Age. | |
|---|---|---|---|---|---|
| 1 | W. H. Lusk | .... | .... | .. | I |
| 2 | W. H. Lusk | .... | .... | .. | I |
| 3 | W. H. Lusk | .... | .... | .. | |
| 4 | W. H. Lusk | .... | .... | 26 | |
| 5 | J. S. Hawley | Sixth | .... | 32 | |
| 6 | J. E. Allen | Several misc. | Tried forceps and version before Cæsarian operation | 35 | E |
| 7 | J. M. Hays | Fourth | Craniotomy | .. | |
| 8 | H. H. Vinke | .... | Tried forceps and version before Cæsarian operation | 20 | |
| 9 | Seth Hill | .... | Ditto | 21 | |
| 10 | D. H. Fay | .... | .... | .. | |
| 11 | H. A. Kelley | First | .... | 26 | E |
| 12 | F. M. Donohue | First | .... | 30 | E |
| 13 | H. A. Kelley | Fourth | 2 craniotomies | .. | N |
| 14 | H. A. Kelley | .... | 1 misc. .... | .. | |
| 15 | H. A. Kelley | Third | Forceps | 26 | |
| 16 | D. Logaker | Twelfth | .... | 40 | |
| 17 | A. H. F. Biggar | Fourth | 3 craniotomies | 28 | |
| 18 | A. H. F. Biggar | Third | .... | 34 | |
| 19 | R. A. Murray | Second | .... | 25 | E |
| 20 | H. C. Coe | First | .... | .. | |
| 21 | H. C. Coe | Second | .... | 37 | |
| 22 | Henry Gibbons | .... | .... | .. | |
| 23 | J. N. Bartholomew | Second | .... | 17 | |
| 24 | H. A. Kelley | .... | 2 craniotomies | .. | |
| 25 | H. A. Kelley | .... | .... | 36 | |
| 26 | H. C. Coe | .. | .... | 22 | |
| 27 | H. C. Wyman | First | .... | .. | |
| 28 | Seth Hill | .... | .... | .. | |
| 29 | J. H. Corstens | First | .... | 24 | |
| 30 | P. H. Ingalls | Second | .... | 33 | |
| 31 | William Goodell | Twelfth | .... | 32 | F |
| 32 | C. Kellock | .... | .... | .. | |
| 33 | T. G. Thomas | First | .... | 20 | |
| 34 | A. H. F. Biggar | Fifth | 3 craniotomies | 28 | |
| 35 | A. H. F. Biggar | Fifth | 3 craniotomies | 34 | Sa |
| 36 | G. S. Mitchell | First | .... | 24 | |
| 37 | M. L. Wescheke | .... | .... | 36 | Se |
| 38 | A. Worcester | .... | 1 craniotomy, 1 version, at 8 mos. | | |
| 39 | A. P. Dudley | Third | 2 craniotomies | .. | |
| 40 | George Haven | Third | 1 craniotomy, 1 verson. Forceps | 35 | N |

forbidden attending public schools on the ground that they have a contagious disease.

## SYMPHYSEOTOMY.[1]

BY JAMES M. JACKSON, M.D.

NATURE has made a wise provision in certain of the

[1] Read, by invitation, before the Obstetrical Society of Boston, December 8, 1894.

I shall end this paper by reporting a case which I had the pleasure of operating upon in July, 1894.

E. F., born in England, thirty years old, of slight build, weight about one hundred pounds, entered the

NATURE has

| Case. | Operator. | No. Preg. | Previous Operations. | Age. | Labor. | Conjugate Inches. |
|---|---|---|---|---|---|---|
| 1 | W. H. Lusk | .... | .... | .. | In labor | .. |
| 2 | W. H. Lusk | .... | .... | .. | In labor | .. |
| 3 | W. H. Lusk | .... | .... | .. | 6½ days | 2½ |
| 4 | W. H. Lusk | .... | .... | 26 | .... | .. |
| 5 | J. S. Hawley | Sixth | .... | 32 | .... | .. |
| 6 | J. E. Allen | Several misc. | Tried forceps and version before Cæsarian operation | 35 | 6 days Exhausted | 2½ |
| 7 | J. M. Hays | Fourth | Craniotomy | .. | .... | .. |
| 8 | H. H. Vinke | .... | Tried forceps and version before Cæsarian operation | 20 | 2 days | .. |
| 9 | Seth Hill | .... | Ditto | 21 | 2 days | .. |
| 10 | D. H. Fay | .... | .... | .. | 36 hours Exhausted | 1½ |
| 11 | H. A. Kelley | First | .... | 26 | 2 weeks Exhausted | 2½ |
| 12 | F. M. Donohue | First | .... | 30 | 5 days | .. |
| 13 | H. A. Kelley | Fourth | 2 craniotomies 1 misc. | .. | Not in labor | .. |
| 14 | H. A. Kelley | .... | .... | .. | .... | 2½ |
| 15 | H. A. Kelley | Third | Forceps | 26 | .... | 2½+ |
| 16 | D. Logaker | Twelfth | .... | 40 | 30 hours | .. |
| 17 | A. H. F. Biggar | Fourth | 3 craniotomies | 28 | .... | .. |
| 18 | A. H. F. Biggar | Third | .... | 34 | 5 days Septic | .. |
| 19 | R. A. Murray | Second | .... | 25 | 3 days Exhausted | 3½ |
| 20 | H. C. Coe | First | .... | .. | .... | 3½ |
| 21 | H. C. Coe | Second | .... | 37 | .... | .. |
| 22 | Henry Gibbons | .... | .... | .. | 24 hours | 2½ |
| 23 | J. N. Bartholomew | Second | .... | 17 | .... | 2 |
| 24 | H. A. Kelley | .... | 2 craniotomies | .. | .... | 3 |
| 25 | H. A. Kelley | .... | .... | 36 | .... | 3 |
| 26 | H. C. Coe | .. | .... | 22 | .... | 3½ |
| 27 | H. C. Wyman | First | .... | .. | .... | .. |
| 28 | Seth Hill | .... | .... | .. | 1 week | .. |
| 29 | J. H. Corstens | First | .... | 24 | .... | 3 |
| 30 | P. H. Ingalls | Second | .... | 33 | 24 hours Exhausted | 2½ |
| 31 | William Goodell | Twelfth | .... | 32 | .... | .. |
| 32 | C. Kellock | .... | .... | .. | .... | .. |
| 33 | T. G. Thomas | First | .... | 20 | 2d stage | 2 5-8 |
| 34 | A. H. F. Biggar | Fifth | 3 craniotomies | 28 | .... | .. |
| 35 | A. H. F. Biggar | Fifth | 3 craniotomies | 34 | Same patient as No. 34 | .. |
| 36 | G. S. Mitchell | First | .... | 24 | 2 days Exhausted | 1½ |
| 37 | M. L. Wescheke | .... | .... | 36 | Several days | .. |
| 38 | A. Worcester | .... | 1 craniotomy, 1 version, at 8 mos. | . | 34 hours | 4½ |
| 39 | A. P. Dudley | Third | 2 craniotomies | .. | .... | 2¾ |
| 40 | George Haven | Third | 1 craniotomy, 1 verson. Forceps | 35 | Not in labor | 2½ |

forbidden attending public schools on the ground that they have a contagious disease.

[1] Read, by invita
cember 8, 1894.

## SYMPHYSEOTOMY.[1]

BY JAMES M. JACKSON, M.D.

ATURE has made a wise provision in certain of the

| | Conjugate. Inches. | Cause of Operation. | Uterus. | Antiseptic. | Mother. | Child. | Where. | Reference. |
|---|---|---|---|---|---|---|---|---|
| | .. | Probable deformity | .... | $HgCl_2$ | Well | Well | Hospital | Trans., Gyn., 1888 |
| | .. | Carcinoma of uterus | .... | " | " | " | " | Ditto |
| | 2½ | .... | Outside | " | " | Dead | " | Ditto |
| | .. | Gen. cont. pelv. | " | " | Dead | " | " | Med. Jour., New York, 1889 |
| | .. | Carcinoma of vagina | .... | .... | Dead (nearly so when op). | " | " | Ditto |
| d | 2½ | ... | Outside | Carbolic | Dead | " | Home | Am. Jour. of Ob., New York, 1889 |
| | .. | Flat pelvis | " | $HgCl_2$ | " | " | " | N. C. Med. Jour., 1889 |
| | .. | .... | " | " | " | Well | " | Med. Assoc., Mo., 1889 |
| | .. | Gen. cont. pelv. | .... | " | " | " | " | Ditto |
| d | 1½ | Gen. cont. pelv. | Outside | " | Well | " | " | Trans. Gyn., 1890 |
| d | 2½ | .... | Inside | " | " | " | " | Am. Jour. of Ob., New York, 1890 |
| | .. | Fibroid | " | " | " | Dead | " | Ditto |
| or | .. | Rachitic fibroid tumor | " | " | " | Well | Hospital | Ditto |
| | 2½ | .... | " | " | " | " | " | Ditto |
| | 2½+ | Flat pelvis | " | " | " | " | " | Ditto |
| | .. | Tumor | .... | " | " | " | Home | Med. and Surg. Rep., 1890 |
| | .. | Rachitic pelvis | .... | " | " | " | Hospital | Med. Rec., New York, 1890 |
| | .. | .... | .... | .... | Dead | Dead | Home | Ditto |
| d | 3½ | Impacted shoulder, gen. cont. pelvis | .... | $HgCl_2$ | Well | Well | Hospital | Med. Jour., New York, 1890 |
| | 3½ | Rachitic. | Outside | " | " | " | " | Trans., Gyn., 1891 |
| | .. | Fibroid. | " | " | " | " | " | Ditto |
| | 2½ | .... | .... | " | " | " | Home | Occident. Med. Times, 1891 |
| | 2 | Rachitic pelvis | Inside | Carbol., 5% | " | " | " | Med. Jour., New York, 1891 |
| | 3 | Gen. cont. pelv. | " | $HgCl_2$ | " | " | Hospital | Ditto |
| | 3 | Rachitic pelvis | " | " | " | " | " | Johns Hop. Bul., 1891 |
| | 3½ | Gen. cont. pelv., result of acc'd't | Outside | " | " | " | " | Internat. J. S., New York, 1891 |
| | .. | Deformed pelv. | .... | " | Dead | Dead | Home | Med. Rec., New York, 1891 |
| | .. | Gen. cont. pelv. | .... | " | Well | Well | " | Proceedings Can. Med. Soc., 1891 |
| | 3 | .... | Outside | " | " | " | Hospital | Am. Jour. of Ob., New York, 1892 |
| d | 2½ | Gen. cont. pelv. | " | " | " | " | " | Ditto |
| | .. | Carcinoma of uterus | Inside | " | " | " | " | Med. Press, New York, 1892 |
| | .. | Flat pelvis Dwarf | .... | " | " | " | Home | N. C. Med. Jour., 1892 |
| | 2 5-6 | Gen. cont. pelv. | .... | " | " | " | Hospital | Med. Rec., New York, 1892 |
| | .. | " " " | .... | " | " | " | " | Ditto |
| ent | .. | " " " | .... | " | " | " | " | Ditto |
| d | 1½ | Tumor | Outside | " | " | " | Home | Am. Jour. of Ob., New York, 1893 |
| ys | .. | Deformed. Emergency | .... | Soap | Dead | Dead | " | Pacific Med. Journal, San Francisco, 1893 |
| | 4½ | Gen. cont. pelv. | Inside | HgCl, | Well | Well | Hospital | Boston Med. and Surg. Jour., 1893 |
| | 2¾ | " " " | .... | " | " | " | " | Post Grad., New York, 1893 |
| or | 2½ | " " " | Outside | " | " | " | " | |

[1] ...ad, by invitation, before the Obstetrical Society of Boston, De... 8, 1894.

we should wait until the pains begin, and also how much dilatation should be present, or whether we should operate at our convenience any time during the last days of pregnancy. Dr. H. C. Coe believes that the best time to operate is before labor has begun and

be, an incision should be made through the uterine wall, in the median line, just below the top of the fundus, and extend down for about three and a half inches. A rubber ligature is placed lightly round the uterus at the cervical junction, not to be need save in case of

if possible, the placental site determined; if it cannot

spoken as dumb for the operation, our mortality immediately rises and the proof we wish is forthcoming.

I shall end this paper by reporting a case which I had the pleasure of operating upon in July, 1894.

E. F., born in England, thirty years old, of slight build, weight about one hundred pounds, entered the Boston Lying-in Hospital on the 10th of July, 1894. She was a patient of Dr. George G. Sears, and was referred by him to the hospital. She was pregnant for the third time. Her first pregnancy was terminated by craniotomy, which was followed by sepsis, and she made a very slow recovery. The second was terminated by a very difficult version, subsequent to high forceps, by Dr. Edward Reynolds. The result in both cases was a dead child. Her pelvis was carefully measured by Dr. William L. Richardson, Dr. Charles M. Green and myself with the following results: spines 9 in., crests 10 in., trochanters 10⅞ in., the true conjugates 2⅝ in. The conjugate was apparently less than at the preceding delivery. The reason for this has not been determined. It must be stated here that she came to the hospital two months before the operation, seeking an induced labor, but was advised against it by Dr. William L. Richardson, as the danger was considered about equal to that of Cæsarean section, and she was very anxious to have a living child.

I shall make no comments upon the pelvis, save to say that it was too small to allow of but two operations, Cæsarean section and craniotomy. She was prepared for operation by the method already spoken of, and at 11.15 A.M., Sunday morning, July 15, 1894, she was given ether. She was on the table at 11.30. Drs. E. Reynolds, C. W. Townsend, J. W. Bartol, and Harlow assisted, and Drs. Richardson and Green were present. First cut in the abdominal wall 11.33, abdominal cavity opened 11.34. Uterus delivered from abdominal cavity 11.35½. Ligature round neck of uterus 11.36½. Uterus opened 11.38½. Placenta delivered 11.38 and 45 seconds. Baby delivered 11.38 and 55 seconds. Membranes delivered 11.39 and 20 seconds. Sutures begun in uterus 11.42, finished at 12.04. Sutures begun in abdominal wall 12.07, finished 12.19. Patient in bed 12.35.

There was no bleeding from the abdominal incision. Thickness of abdominal wall was about one-half inch. The bleeding from the uterus was very slight after the first gush, which was apparently merely the blood held in the organ. After the sutures were in position there was no bleeding. The abdominal cavity was not washed out, and the organ was merely replaced after suturing and the abdominal walls united. A subcutaneous injection of ergotine was given. The patient had in the evening an enema of bromide of potash. She was for a day or two more or less hysterical, was given bromide and champagne. The baby was nursed from the beginning, and gained steadily in weight. The mother was up in three weeks and left the hospital in four weeks. Her temperature chart is uninteresting. There was a slight rise during the first forty-eight hours, to be followed by a practically normal chart. Her pulse was never above 100. I saw her a short time ago. She was well, and had a remarkably healthy and fine son. The baby's initial weight was eight pounds.

I am indebted to Dr. Courtney for preparing the table of cases.

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IN Toronto, children suffering from phthisis are forbidden attending public schools on the ground that they have a contagious disease.

## SYMPHYSEOTOMY.[1]

BY JAMES M. JACKSON, M.D.

NATURE has made a wise provision in certain of the lower animals, notably the guinea-pig, by which the symphysis separates sufficiently, just before parturition, to permit of easy transit of the fetus through the pelvis.

The operation which we are about to discuss is then an imitation of one of Nature's provisions. In these days an imitation is often quite as good as the original; but whether it will prove to be so in this case remains to be seen.

Symphyseotomy was first performed by Sigault, in Paris, in 1774. The mother and child both survived. This good result naturally enough lead many operators, especially amongst the Italians, to attempt the operation. The subsequent results were so bad and the mortality so great that it was finally abandoned, to be revived in 1866 by Morisani and Novi of Naples, with some degree of success. Three years ago the operation made its exit again from Italy and was taken up by Zweifel, Freund and Pinard. These men attempt to show that the operation is a practical and safe one under certain conditions, and we now find reports of cases in almost every obstetrical journal of to-day.

Sufficient time has not elapsed since the revival of the operation in 1890 and 1891 for us to form an honest estimate of the ultimate result, but enough cases have been reported to convince one that it is in reality a very serious operation.

At first glance it seems a very simple and easy procedure, which may be done in any household; but after following a case through from the operating-room to the pathological institute one may be excused, I think, for changing his opinion.

There are two methods of operating, the subcutaneous and the open; but as the time is limited I will describe the one in general use; the open method being by all odds the best, inasmuch as it gives the operator a chance to watch the separation of the symphysis and also to tie bleeding-points. The operation is never done until the os uteri is nearly or fully dilated and until high forceps have been attempted, — never after attempt at version.

Owing to the great liability to sepsis, the utmost care must be taken in rendering the lower part of the abdominal wall and vagina as aseptic as possible. An incision is made over the symphysis, extending upwards far enough to permit the operator to insert a finger back of the symphysis. Short lateral incisions are made at the lower end of the wound, and the fascia freed from its attachment to the pubes. The urethra is held to one side by inserting a stiff catheter. Then with a blunt-pointed, slightly-curved bistoury the symphysis is divided by cutting downward and backward. The sub-pubic ligament must also be divided in order to get sufficient separation. The pubic bones then spread apart a varying distance, but should not be allowed to separate more than eight centimetres, lest the sacro-iliac synchondrosis be ruptured. Up to eight centimetres there is little or no danger, as the articulation between ilium and sacrum is now known to be a true joint capable of slight movement. The head sinks at once into the pelvis.

Another great danger at this point is hemorrhage

[1] Read, by invitation, before the Obstetrical Society of Boston, December 8, 1894.

from the prevesical space thus opened. Vessels here cannot be tied and deep stitches do but little good, so that there is nothing left to do but pack with gauze. If this is not sufficient counter-pressure may be made by packing the vagina.

We may wait for a spontaneous delivery or apply forceps and deliver at once. Zweifel recommends waiting even twenty-four hours, if necessary, provided the fetal heart-sounds are good. A spontaneous delivery is of advantage because there is likely to be less damage done than by artificial delivery. Out of 44 cases which Harris cites, there were only eight spontaneous deliveries; and in 12 by Zweifel, only two. If after a reasonable time has elapsed without advance of head, or if the fetal heart-sounds give warning of danger, forceps should be applied. During the delivery the pelvis should be held by assistants lest too great a separation of symphysis takes place.

Delivery is usually easy, owing to the quite considerable increase in the diameters of the pelvis; but it is also very easy to wound the vagina at this stage, and herein lies one great objection to the operation. Several cases have been reported, and I have myself seen one case at autopsy, where the anterior wall was so torn that the finger could be passed from above the symphysis through into the vagina. The urethra in this case was also ruptured. Further, the sacro-iliac synchondrosis may be so stretched that a rupture of the capsule occurs, sometimes with direful results. In a pelvis which I once saw there was a large blood-clot in each joint, and also considerable pus, the woman having died of septicemia.

After delivery the symphysis is forced together, and may be held in place either by strips of adhesive plaster across the pelvis, or by suturing the pubic bones. Zweifel drills holes in each side of the symphysis and holds the ends together with catgut. With this a firm bandage should be worn. The prevesical space is always drained for one or two days.

The after-treatment consists in keeping the woman quiet in bed for three weeks with knees tied together. She is then allowed to get up if union of the symphysis has taken place. For six months she is not allowed to do any heavy work or straining. Each case must, of course, be treated *per se*, for there are cases in which the union is greatly delayed.

It seems illogical to think that symphyses should heal in so short a time, but, as a fact, most of them do, at least that is what is claimed. I know of a case in Vienna where the woman was in bed the greater part of six months, and even then could walk only with the greatest difficulty on account of failure of union in the symphysis and great laxity of the sacro-iliac joints. In another case, the woman waddled in walking, which was also due to partial non-union, though she was able to get about without much difficulty.

I wish here to cite a case reported by Garrigues. The operation was a success, and everything went well. At the end of a month the patient went home, apparently well. The symphysis at that time had united except at the lower end, which would just admit the finger-tip. At the end of three and a half months the patient returned, with waddling gait and pain in all three joints of the pelvis when walking. Examination showed that the lower end of the symphysis had separated half an inch.

Another source of danger, which I may mention here, is from cystitis or even suprapubic fistula of the bladder, due to a pinching of the bladder wall between the ends of the symphysis.

Garrigues says that by division of the symphysis the distance from the middle of the promontory to the ends of the pubic bones increases 14 millimetres, and during birth an additional gain of 6 to 8 millimetres is made, or 20 to 22 millimetres in all, and that the increase in other diameters may amount to as much as 35 millimetres. Döderlein estimates that by a separation of the pubic bones of 6 centimetres a superior strait of 105 square centimetres would be increased to 155 square centimetres. The distinct advantage of such a gain in pelvic measurements needs no comment.

The disadvantages, as already noted, are as follows:

(1) Rupture of the sacra-iliac joints. Now that we know that a separation of more than eight centimetres of the symphysis is liable to rupture the capsule of these joints, such an accident need hardly occur.

(2) Rupture of soft parts of vagina and urethra. This is not a rare complication, and to my mind is a strong point against the operation.

(3) The danger of non-union of the symphysis. Sandberg, in his article on symphyseotomy in the *American Journal of Obstetrics*, for February, 1894, says: "Faulty union of pubic bones, resulting in impaired locomotion was one of the great objections to the operation in its early period. Since its revival and especially during the last six or seven years, failures in this respect are almost unheard of, whether the operator applies bone sutures or only keeps the divided bones in apposition by a firm bandage." In my very limited acquaintance with the operation I know of two cases of non-union. I will admit, however, that such cases are, as he says, "almost unheard of." Zweifel reports three cases of waddling gait out of 23 symphyseotomies; Fritch four out of four; Graudin one out of four; and Garrigues one out of two. In all of these 33 cases, nine had disturbed locomotion.

It has occurred to me that there is an analogy to be drawn between the healing of the symphysis after this operation and the healing of a compound fracture of the patella. We know that in the case of the latter 6.6 months on the average are necessary for a union (according to Dr. J. G. Mumford's statistics) which in most cases is by cartilage, and that about half these cases break down or stretch afterwards. If the analogy is correct is it not just to infer that a like result may take place in the symphysis? The case of Garrigues already cited, seems to be a good illustration of this point.

(4) The length of time required in convalescence, which may be said to be quite as long as in Cæsarean section. Three weeks in bed, getting up gradually according to the amount of union in the symphysis. No hard work for six months to a year.

(5) The great liability to sepsis which is shown in cases where there has been a bad laceration of the vagina. I judge merely from autopsies and post-mortem specimens which I have seen and from a few reported cases, all of which were under the care of good operators.

Lastly, the rate of mortality. It has been placed at 10 per cent.; but this I feel is entirely too high. It ought not to exceed two or three per cent., with our recent methods and with greater care in selecting cases. It is obviously unfair to count cases that have been tampered with by meddling midwives and uncleau doctors before the operation, or cases in which labor

has been going on for one or two days until the patient is in a low condition. It is on this account that the mortality in America is so high, according to Garrigues, namely, 15.39 per cent. for mothers and 30.77 per cent. for children in 26 cases.

We must admit that as yet operators are inexperienced, and the mortality is high on that account. Zweifel, in his 14 reported cases, has not lost a mother, though he has lost two children, which may give us considerable hope of the future success of the operation.

Indications. Symphyseotomy finds its proper field in contracted pelves, both flattened and generally contracted, and in certain impacted, faulty presentations of the vertex.

The following limits should be carefully observed: in flattened pelves, with conjugate vera of from 6.5 to 8.5 centimetres, and in generally contracted pelves from 7.5 to 9.5 centimetres. In pelves below these measurements Cæsarian section is indicated, forceps or version above. The operation should not be done until high forceps has been tried; nor is it indicated if the woman is in poor condition or the child dead.

Symphyseotomy comes, then, as a direct competitor of Cæsarean section, craniotomy and premature deliveries. The feeling here in Boston is so strong in favor of saving the mother always, even at the expense of the child, that it will be a long time before either Cæsarean section or symphyseotomy will be generally practised; for even in the most skilful hands there is considerable danger in these operations, while in craniotomy or premature delivery the mortality ought to be nearly nothing. Again, the same difficulty arises with symphyseotomy as with Cæsarean section, namely, the length of time necessary for complete recovery, which is of considerable moment amongst the poorer classes. Enthusiasts in the new operation claim that it is no longer justifiable to elect deliberately embryotomy in place of Cæsarean section and symphyseotomy, but until they can show a lower rate of mortality; both maternal and fetal, and better after-effects, the conservative American will continue to practise as heretofore. There has been some controversy over the question as to whether the operation should ever be attempted outside a clinic. So many assistants are required and such careful nursing afterwards that it makes the operation impracticable except in clinics and rich families.

In closing, I may say that the opportunities of this operation are enormous, provided certain present objections can be removed. I do not agree with many who claim that the great mortality is sufficient to condemn the operation, for in skilful hands the death-rate ought not to exceed two or three per cent. In 100 cases by Zweifel, Pinard and the Italians the mortality was only two per cent., which makes a very good showing.

My personal objections to the operation are rather on account of the lacerations which may occur during delivery and the bad after-effects; and until we can be assured of better results in these respects the operation is *not*, I hold, a success, for of what advantage is it to save a child and perhaps cripple the mother for years? Then, and not till then, will Dr. Garrigues' remarks be pertinent, in which he says: "Craniotomy on the living child is a repulsive operation that has met with just condemnation from many sides. As long as the only alternative was Cæsarean section I did not hesitate to sacrifice the child in order to save the mother; but since in symphyseotomy we have got an operation almost without danger to mother and with moderate danger to child, I do not think that any man should be compelled to, or justified in, deliberately murdering the child, provided the necessary conditions for a successful symphyseotomy can be brought about. . . . If we take the most skilful operators, the mortality of symphyseotomy is practically nothing, against eight per cent. in Cæsarean section. One must, therefore, be a fanatic worshipper of the latter operation in order to think of performing it when the former is practicable.

## Clinical Department.

### A CASE OF PERSISTENT HEMATURIA.

BY CHARLES F. DENNY, M.D., ST. PAUL, MINN.

My only apology for offering this case for publication is its chronicity, and its ultimate cure without recourse to operative methods. It shows that by perseverance in treatment we sometimes may succeed where we least expect, without radical measures. On November 27, 1893, I was consulted by a gentleman, who gave the following account of himself:

Mr. J. K. M., a Scotchman, married, age thirty-nine years. Both parents living in good health. Grandparents all died old. One sister died of scarlet fever. One brother died of phthisis, induced by a cold; no other cases in the family. At ten years of age, he was seriously sick with a fever, presumably of a typhoid type. At twenty-nine years of age, he had a mild case of gonorrhea, and in the summer of 1891 he had a diarrheal difficulty which lasted from four to six weeks.

During September, 1892, while on a hunting trip, he got chilled to the extent, that he claims his teeth chattered, and soon after this he noticed his urine was dark colored, as though mixed with blood. From that time to the present his urine was never free from its dark color. His habits in regard to liquors were correct, as he never abused or made a steady use of them. Tobacco he does not use in any form.

His general health is excellent. He suffers no pain or discomfort whatever in his bladder or genitals. Long standing or overwork of any kind will produce a darker urine. For the relief of his condition he consulted several physicians, among the number two of the most distinguished regular practitioners in this vicinity. From both he received the information that he had bloody urine. From both he received internal treatment. From neither did he receive any local treatment. From the one who treated him the longest he received but little encouragement as to cure. When he presented himself to me it was not with a great deal of enthusiasm as to permanent results. Examination showed a large knotty varicocele on the left side, the vessels standing well out on the scrotal surface, and the cord easily felt beneath. On calling his attention to this, he said "that it had existed since a horse-back ride when fifteen years old, and was aggravated by a blow received, four years prior to his present trouble, on his privates, while in a saw-mill." The varicocele, large as it was, gave him no discomfort whatever and that fact was accounted for by his use of a suspensory bandage.

Nothing was noted in reference to the penis save it was long, and pendulous. The meatus was free from any discharge, and easily admitted a 19 A. (29 F.) sound. On passing a full-sized Otis bulb slight catching was felt at one inch, and at two and three-quarters inches from the meatus. These slight strictures evidently resulted from his gonorrhea, and offered no obstruction to the passage of the 19 A. sound. A No. 11 A. bougie at five and a half inches from the meatus seemed to meet more resistance than normal on pushing it on into the bladder, but this was probably a simple spasmodic contraction, as the No. 19 sound ran easily into the bladder. Rectal examination detected no prostatic or vesicular hypertrophy; not even tenderness on pressure was noted.

On applying the two-beaker test (Thompson's test), both catches of urine were dark-mahogany color. The urine when drawn by a catheter directly from the bladder was the same color. He was requested to bring a specimen of the morning urine the next day, which he did. Its specific gravity was 1.028; its reaction was acid; and it rapidly precipitated, leaving a heavy, dark red-brown sediment in the glass. Placed under the microscope this sediment showed free blood-corpuscles in profusion. A few bladder cells and fibrinous shreds. Acetic acid developed a few round nucleated cells. The amount of urine was up to the daily normal average.

I explained to him that I believed he had a small villous growth in the bladder which was the cause of his hematuria, and that local treatment might be of curative action, and should be tried before any operative measures were taken.

Before taking the case it was distinctly understood that he was to be treated until it was clearly demonstrated he could not recover without an operation. It was due to his willingness to keep this compact that the ultimate result was so satisfactory. He had previously been treated internally with ergot and gallic acid. My first endeavor was to see how much internal medication would affect the hemorrhage. He was given large doses of gallic acid, ergot, tr. ferri chloridi, ol. erigeron, and others, singly and in combination. Since Jamaica rum had been successfully given in a case of hematuria, he was dosed with that beverage. Fl. ext. pichi was given a trial. But beyond the most trifling effect as to color, nothing resulted. Everything was fairly and thoroughly used.

December 14, 1893. The bladder was first washed out, through a catheter fitted to a Hosmer tube, with warm water from an irrigating bottle until it ran clear, then a weak solution of permanganate of potassium, two grains to one pint, was allowed to run in. The last six ounces were retained in the bladder for several minutes, the catheter being withdrawn. He then passed the greater part himself, except about an ounce which was allowed to remain.

Shortly after this the urine was somewhat clearer, though still dark tinted. The microscope showed less blood but rather more bladder and prostatic epithelium in stringy masses. The permanganate solution was used in increasing strengths up to two to three grains to one ounce. But beyond slight improvement no material change was noted. The bladder was exceedingly tolerant, and very distensible. He could with ease retain large amounts of urine.

January 16, 1894. Hot water was used, gradually increasing the temperature up to 110° F. and at times even warmer. During this period a few medicated injections of alumnol, tannic acid, and Lloyd's hydrastis were used, always after the hot irrigation. These hot injections were allowed to thoroughly distend the bladder, and were retained for several minutes, the process being repeated until about a quart of the water was used. This was continued every other day for several weeks, with improvement. On Sundays, when resting, the urine was much clearer, still never transparent or free from a dirty-white tinge.

March 27, 1894. Dr. G. A. Renz, of St. Paul, examined the urine carefully for me, for bacilli, with negative results, so as to exclude tubercular disease. March 19th, prior to the examination for bacilli, silver-nitrate solutions were commenced, after thoroughly cleansing the bladder with warm water. Two ounces of half-grain to one-ounce strength were injected, and held for a short time before withdrawing. This was done every two or three days, slowly increasing the strength until six grains to one ounce was reached.

These injections never gave any trouble save a slight desire to urinate a short time after treatment. His tolerance was far above the average in this respect. The urine voided several hours after injection was darker and heavier. Specimens he brought and passed for me at this time showed a dark, whitish sediment, which under the microscope disclosed less blood and decidedly more cells and fibrinous string. As treatment progressed, this sediment became thinner, until a point was reached where it seemed to reach a standstill.

On Saturday, April 7th, I gave him an injection of silver nitrate (five grains to the ounce), and the following morning his urine was very dark and thick, and then became lighter the rest of the day. On the next day, to his surprise, his first passage of urine was clear and transparent. On April 10th he voided, in my presence, an apparently normal urine. This, on standing, settled to a light, whitish cloud, no more than is often seen in normal specimens, and the microscope showed a few scattering blood discs and a trace of epithelium.

On May 7th no blood was found. Again, on July 30th, an examination failed to find blood, and no more epithelial *débris* than normal. A few calcic-oxalate crystals and a small mucous string were the only results.

Up to the present date of writing, December, 1894, no relapse has occurred, and he considers himself cured.

In considering this case it is to be regretted that a cystoscopic examination of the bladder could not have been had, and the villous growth actually demonstrated; but a Leiters instrument was not at my command. Had it been used, I believe the growth would have been found at the base in the vicinity of the trigone.

These cases are always troublesome, and slow in their course, oftentimes giving rise to no symptoms save hemorrhage. They should be carefully studied.

After a considerable experience of genito-urinary disorders during the past thirteen years I can testify to the fact that careful study and perseverance are the essentials of success in this branch of medicine. "Make haste slowly," is only too true, and should be firmly fixed in the mind of all who assume such work. To simply say "you have blood in the urine" is small consolation to a patient. You must seek its source, from what part of the urinary tract it arises, its cause

if possible, and then direct your efforts towards its cure. Try one thing at a time thoroughly, and shelve it when it proves of no use. In no class of cases should the tolerance of a patient's bladder be more fully considered. This fact should be ascertained by gradual increase in strength of solutions used, and any irritation that does not readily subside should be avoided.

My experience has taught me that of all chemicals used in genito-urinary work silver nitrate is the most useful. It is an agent of great good, or great evil, as its proper or improper use will quickly demonstrate. No agent is so much abused in its use as this, and no other agent can be made to do so satisfactory work with proper care.

One of the first essentials in bladder applications of all kinds is thorough cleansing. It matters little whether mild carbolic or boric-acid solutions or warm water alone are used, the organ must be washed out until the washings run clear, in order that the active medication may have full play in an organ as free from foreign matter as possible. With silver solutions mild strengths should be first used, half a grain to the ounce, from two to four ounces being injected at once, and retained a short time and then withdrawn. The time of retention may be slowly increased with benefit from time to time. This is purely a matter of judgment, to be decided wholly by the tolerance of the patient. The solution is slowly increased in strength up to ten grains to the ounce in some cases. Some cases are very intolerant of strong solutions, hence the necessity for slowly feeling your way grain by grain. If more than ordinary reaction occurs, they should not be continued. As a rule, silver injections should not be used oftener than every three to seven days.

The subject of bladder growths is so fully considered in the many text-books, that it is not my purpose in a clinical picture of this kind to enter into any extended discussion. But I do wish to emphasize the fact that many cases are brought to the operating-table which more perseverance in local treatment might subdue. And while I am fully aware of the prejudice that exists in the minds of many against the stronger solutions of silver, and while at the same time no one more than myself would shun their careless abuse, I must say, that with due care no harm, much good, and many cures will result where otherwise surgical operation would be required. I do not decry operating in proper cases, many of which occur.

## MULTILOCULAR CYST OF THE OVARY; DOUBLE OVARIOTOMY; RECOVERY.[1]

BY JOHN S. PHELPS, A.M., M.D.

Mrs. M., age twenty-five, born in Ireland. Seen for the first time in August, 1894, with reference to present trouble. Owing to her poor physical condition, interference was postponed until her return from the summer hospital where she was to go with her sick baby, in hopes that the rest and change might build up her own strength as well as that of her child. She presented herself in September markedly improved.

She never was rugged, but always had enjoyed good health. She was married in April, 1893, and gave birth to a child in February, 1894. She first noticed a swelling in her lower abdomen one year before marriage, which swelling had increased in size slowly up to the present time. In the hands of different physicians she had been tapped on three occasions. The first time in March last, nearly two years after the appearance of the swelling, eighteen quarts of "muddy" fluid were withdrawn. Five weeks later thirteen quarts were taken away; and in May last she was relieved of five quarts, according to her statements.

She had no gastric disturbances; never any marked bladder symptoms. Catamenia normal since childbed. No metrorrhagia, general health had grown steadily worse in the last six months with loss of flesh and nervous depression.

Physical examination showed her to be a woman of slight frame and fairly well nourished. Heart and lungs were negative. Urine negative. The abdomen was markedly distended and appeared larger than that of a gravid uterus at full term; dull on percussion. The tumor apparently was movable and very tense. She never had had any symptoms of local peritonitis.

Vaginal examination showed uterus to be free from adhesions, two and a half inches deep and somewhat anteflexed. There was moderate tenderness in the regions of the ovaries.

The operation was performed October 5, 1894, at St. Margaret's Hospital, Dr. Farrar Cobb assisting. An incision two inches long, over the most prominent part of the tumor, in the median line, showed it to be firmly adherent to the parietal peritoneum. The incision was then enlarged to three and a half inches upwards, opening the peritoneal cavity. Inserting the hand, the extensive adhesions to the abdominal wall were with difficulty finally separated. The tumor was then aspirated after being walled off, and several quarts of gelatinous fluid welled out through the lacerated opening made by the large canula. Inserting the hand into this cyst allowed the puncture of a second cyst, and the escape of a large quantity of a clear yellow serous fluid with partial collapse of the tumor enabling its delivery. Adhesions to omentum and bladder and intestines were ligated and cut away.

The tumor had a long pedicle about one and a half inches in width arising from the right tube, with obliteration of the ovary. This pedicle was clamped, doubly ligated with braided silk, and cut away. No bleeding. Further examination showed the left ovary cystic and enlarged to the size of an orange. This was likewise removed. The abdominal cavity was thoroughly dried by dry gauze sponging, and the wound of incision sewed up with interrupted silkworm-gut sutures. The operation lasted one hour, leaving the patient in excellent condition.

The convalescence was uneventful, the pulse and temperature remaining practically normal. Some abdominal pain developed on the second day, which was relieved by the escape of gas through a rectal tube, and later by an enema combined with the administration of salts.

Examination of the wound on the seventh day showed perfect coaptation and union, and the stitches were removed. Patient went home on the sixteenth day wearing a firm abdominal support.

The weight of the tumor, estimated from the weight of the patient before and after operation was about twenty-five pounds. The extensive adhesions caused

[1] Read before the Surgical Section of the Massachusetts Medical Society, January 2, 1895.

by repeated aspirations impeded the progress of the operation.

The girth of the abdomen at navel before operation and after was thirty-four and a quarter and twenty-seven inches respectively.

Since operation the patient, under moderate tonic treatment, has gained rapidly in strength and bodily weight, as is not unusual in this class of cases.

Specimens shown.

## Medical Progress.

### RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D.

#### FOLLICULAR TONSILLITIS.

A PAPER by Dr. Norris Wolfenden on "The Nature of So-called Follicular Tonsillitis and its Relation to Infectious Disorders,"[1] describes recent progress in the study of this disease, with special reference to its bacteriology. The author believes that the time is not far distant when we shall classify the inflammatory condition of the tonsils and throat upon a bacteriological and not a clinical basis. He describes briefly four varieties, omitting all cases in which the bacillus of diphtheria plays a part, under the head of staphylococcal, streptococcal, pneumococcal, and Roux and Yersin coccal angina. In all of these forms there may be throat symptoms which resemble diphtheria. "Follicular" tonsillitis is not really follicular at all; it is an acute cryptic infection due to one of these forms of cocci. Its contagiousness appears established in some cases, but is generally not very easily traced. It never appears to attack large masses of people simultaneously, although a number of persons living under the same roof or in the same conditions are frequently affected at the same time, suggesting insanitary surroundings as a common cause. The pathological enlargements of the tonsils, in which a chronic process of catarrh is present in the crypts, form not only the best culture media for a large number of micro-organisms but give their products an opportunity to invade the system. Clinical appearances alone often allow so little ground for diagnosis of simple tonsillitis from diphtheria that in the absence of bacteriological diagnosis it is wise to isolate such patients from the first.

#### SURGICAL TREATMENT OF TUBERCULAR LARYNGITIS.

At the recent International Medical Congress this subject was taken up at length by two or three writers and discussed by members of the section. The result on the whole tends to show that there still exists a very wide difference of opinion as to the amount to be hoped for by the more active methods of dealing with this disease. An exhaustive paper by Heryng contains a long list of conclusions generally favorable to surgical interference. He has observed spontaneous healing in fourteen cases out of three thousand, all of them simple cases. The best chances for recovery are where the disease shows itself in the form of infiltration on the posterior wall of the larynx and in which the epiglottis and cartilages of Santorini are not affected, and where the lung affection is slight. For relief of dysphagia, or difficulty in breathing, operations may be necessary from which there is no hope of curing the disease. The healing of deep ulcers of the larynx resting on inflammatory infiltrations is effected quickest by scraping, or removal of the tubercular tissue. Lactic acid is indicated in superficial, circumscribed ulcers of a dirty character, covered by spongy granulous tissue on the vocal cords, false cords and posterior wall of the larynx, and is useless in most cases of large, hard and diffuse infiltrations. Surgical treatment is contraindicated in advanced disease of the lungs and in all cachectic conditions, in diffuse miliary tubercle of the larynx, in severe stenosis, and in patients exhibiting fear and nervous excitability. Surgical treatment demands great perseverance and patience, well-made sharp instruments, and careful after-treatment for a long time. The galvano-caustic treatment of hard tumors of the false cords, of sclerotic infiltrations of the epiglottis and formations of granulations in the ventricles is often of use. Serious bleeding is rare; it can be stopped by an application of a mixture of lactic acid and sesquichloride of iron. In rare cases a dissemination of the tubercle has been observed after surgical interference. Recurrence takes place frequently at the place operated upon and may be explained in some cases by the imperfect performance of the operation.

The discussion on this paper and on one by Gouguenheim on the same subject brought out considerable difference of opinion. Sokolowski calls attention to the fact that cicatrization of laryngeal tuberculosis takes place when the general tuberculous process has a tendency to stop in its development, more or less independent of different therapeutic methods. Lactic acid, iodol, iodoform, menthol, parachlorphenol, as well as surgical treatment sometimes result in improvement, but results are more often negative. He was inclined to favor thyrotomy if any extensive surgical treatment was considered advisable. Egidi favored tracheotomy as a curative proceeding for the larynx. Several speakers had obtained good results from the local action of phenol sulphoricinate. From these different papers we may conclude that up to the present time we cannot expect to get more than temporary relief in cases of laryngeal phthisis except in very rare cases, and that no one form of treatment is applicable to the large number of appearances which tuberculosis may present in the larynx.

#### EMPYEMA OF THE ANTRUM.

Garel,[2] in a paper on this subject, comes to the conclusion that irrigation by the natural orifice is the most expeditious therapeutic method and the first that ought to be tried. It is useless to try to penetrate by the most dependent part, as statistics show no better results in these cases than in any cases perforated higher up. When an artificial opening is to be made, the inferior meatus gives better results than through the alveolar process, except in those cases where it is necessary to extract a foreign body from the cavity. Rebellious cases which have resisted all treatment by irrigation may require opening through the canine fossa and curetting as a last resort. As an irrigating fluid nothing gives better results than a solution of boric acid.

Dundas Grant[3] advocates perforation of the antrum, when this is necessary on account of empyema, through the inferior meatus. The advantages of this opening are, that it confines the discharge of pus to the nose,

[1] Journal of Laryngology, August.

[2] International Medical Congress.

[3] British Laryngological Association, October, 1894.

that it is easily performed by local anesthesia or by short general anesthesia, that the cavity is easily irrigated by the surgeon, and that it hastens recovery. Though not at the most dependent part, it is very near it, and generally sufficiently so. Its disadvantages are that it requires a certain amount of skill on the part of the operator, often requires his aid for subsequent irrigations, and that the opening tends to close rapidly. Krause's instrument, a slightly curved trocar, as sharp as possible, is introduced into the inferior meatus a distance of about one and a half inches. The point is then pushed upwards and backwards and very cautiously forced, with more or less of a crunching sound, through the outer wall of the meatus. The trocar is then withdrawn and the canula is pushed inwards and the cavity washed out with a warm solution of boracic acid. The subsequent washings are done by again introducing the canula, under cocaine, armed with a blunt obdurator in the place of the trocar.

### RECURRENT EPISTAXIS.

Roth,[4] in a paper treating of the various causes of recurrent nose-bleed, shows that the description of the most common cause deserves special attention from the general practitioner who frequently does not appreciate how easily it may be both temporarily and permanently stopped. An erosion or varix of the cartilaginous septum, generally but a short distance within the nose, is often the cause of frequent and annoying bleeding. It may be readily stopped by tamponing during the bleeding, and permanently by the application of the galvano-cautery, trichloracetic or chromic acid. The bleeding spot is often easily found by gentle friction with a probe. A pledget of cotton, moistened with cocaine, is laid against the surface until the bleeding stops, and an application of the cautery or caustic can then be readily made.

### REMOVAL OF ADENOID VEGETATIONS BY THE COLD SNARE.

Professor Chiari,[5] of Vienna, recommends this method of removing adenoids in cases where the nasal passages are straight enough to allow the introduction of the instrument. Both nasal passages are cocainized by cotton-wool swabs dipped in a twenty-per-cent. solution of cocaine. The snare, placed vertically, is then passed through the inferior meatus until it reaches the naso-pharynx; it is then turned horizontally, the wire passing underneath the vegetations, and elevated. By closing the snare the growths are readily removed in most cases. After repeating this process three or four times through both nostrils, the loop being closed in different parts of the naso-pharynx, the patient goes home, to return later for a subsequent operation if necessary. The hemorrhage is slight, and the after-effects generally nothing. With reasonable children no assistance is required; with unruly ones, the head is held firmly and the body wrapped in a sheet. The after-treatment consists in gargles and a wash of a mild solution of permanganate of potash. The second operation should not be undertaken until the nasal mucous membrane has recovered from all irritation. In most cases from one to three sittings are sufficient. Unless the nostrils are narrow this operation is done even on very young children. Chiari considers this method at least not inferior to others, and in many cases much more thorough. There is an almost absolute freedom from danger, since the snare introduced in this way can seize nothing except the vegetations. The bleeding is very slight and by cocaine can be made painless. Where septal spurs or other obstructions prevent the complete removal in this way, it is sometimes necessary to use Gottstein's curette, or cutting forceps.

[4] Wiener med. Presse, No. 23, 1893.
[5] International Medical Congress.

### BEDNARS APHTHÆ.

E. Fraënkel[6] describes this benign affection as found only in the new-born, and as always situated over two symmetrical parts of the hard palate. Examination shows that it begins with the entrance of bacteria under the epithelium, producing an elevation with a little serous exudation beneath and sometimes laceration of the mucous membrane. Careful cleaning is the best treatment.

### TUBERCULOSIS OF THE NOSE.

Strauss[7] has found tubercle bacilli in the nasal fossæ of several pupils and nurses in the hospital. In spite of this fact, local tuberculosis of the nose is comparatively rare. Chiari[8] has seen only six cases in about six thousand patients. Generally the ulcer first appears with granular edges, giving rise to bleeding and obstruction, but with no pain.

### SPONTANEOUS CURE OF PHARYNGEAL TUMORS.

D'Aguanno[9] reports a few cases in which new growths of the pharynx or naso-pharynx have disappeared without the aid of any method of treatment. That this takes place in the case of adenoid vegetations is well known, and certain new growths which though unsuspected may be syphilitic will disappear under iodide of potash; other benign tumors also not infrequently decrease in size or disappear without any very evident cause; but the author has collected a few cases in which sarcomata, apparently steadily advancing and threatening life, have taken on a retrograde growth, or even disappeared. This occurs especially in those tumors very rich in vessels. The retrogressive phase takes place most frequently through alterations in the walls and contents of the vessels; and in other cases the growth appears to be destroyed by some special parasitic infection, notably erysipelas.

### RHINOSCLEROMA.

Paewlowsky[10] describes the treatment of two cases of this disease by an extract of cultures of the rhinoscleroma bacillus. A glycerine extract was injected subcutaneously, and was followed, in the cases suffering from the disease, by a general and local reaction, the affected tissue becoming much reddened and swollen. Injections were continued every second day for six months and a year respectively, at the end of which periods the disease had made no progress. The author believes that the extract may be used as a diagnostic agent.

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ONE of the curiosities of surgical therapeutics is the treatment of tubercular peritonitis by insufflations of air (H. Folet, *Revue de Chirurgie*). After removing serous fluid with an aspirator, the peritoneum is blown up like a bag, three or four litres of air being thrown in. The results are said to be good.

[6] Jahrb. des Hamburg Krankenhaus, 1894.
[7] Bull. Acad. de Méd., July 3d.
[8] Arch. Laryngol. und Rhinol., Bd. 1, 1893.
[9] Section in Laryngology of the Eleventh International Medical Congress.
[10] Deutsche med. Woch., 1894, No. 13.

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, December 8, 1894, the President, DR. CHARLES M. GREEN, in the chair.

DR. J. M. JACKSON read, by invitation, a paper on

SYMPHYSEOTOMY.[1]

DR. GEORGE HAVEN read a paper on

CÆSAREAN SECTION.[2]

DR. A. D. SINCLAIR referred to the mobility of the symphysis in the lower animals resulting in easy parturition.

DR. H. F. VICKERY said he had twice induced labor prematurely at the eighth month in women who had previously lost children in difficult labor. In both the pelvis was of a masculine type with narrow arch. In both the infants lived.

DR. EDWARD REYNOLDS said that the operation of Cæsarean section was, with the modern methods, a very easy one, and not to be compared with many abdominal operations which are done every day. Some three years ago he looked up some forty cases of Cæsarean section that had been operated on early, under good conditions, and with no complications present, in which sero-serous sutures were used. Among these there was only one death and that from sepsis, and under these conditions he does not believe the operation is more dangerous than any abdominal operation.

As regards premature delivery, he thinks the mortality for the mother, if healthy, ought to be *nil;* but with the children the results are poor, as so many die.

The differences obtained in the measurements in Dr. Haven's case he believes were due to the fact that the vagina was dilated when the first measurements were taken, and was contracted by cicatricial adhesions in the second instance.

DR. F. B. HARRINGTON said he should think it would be best to perform the Cæsarean section under favorable circumstances rather than wait for the onset of labor. The operation does not impress him as being a very difficult one.

DR. W. L. BURRAGE said he saw at the New York Infant Asylum a symphyseotomy done by the open method where there was a separation of two and a half inches. It impressed him as an operation of considerable magnitude, with many unfortunate possibilities, and not to be undertaken lightly.

DR. J. B. SWIFT believed that Cæsarean section should be an operation of election as to time, this of course points to the importance of measuring the pelvis before labor.

DR. EDW. REYNOLDS said that the field for symphyseotomy was a narrow one. The operation had been done where the pelvis was normal and there was no need for it, also where the pelvis was too small and where Cæsarean section was alone to be considered. In cases where there is moderate narrowing of the pelvis, and where the labor has been tedious and forceps have been tried in vain and where the child is still living, here Cæsarean section is very fatal, but symphyseotomy has its proper field. When one man can report thirteen cases in one year with only one death, the operation is certainly worth consideration.

[1] See page 181 of the Journal.
[2] See page 179 of the Journal.

DR. G. HAVEN would prefer in case of election the Cæsarean operation. The mortality from both symphyseotomy and Cæsarean section ought to be nothing, but in symphyseotomy we have the great danger of chronic invalidism from the effect on the pelvis.

As to induced labor, there is certainly a mortality here, but it is due to the method. To use a catheter and let it stay in several days is very apt to cause sepsis, manual dilatation with immediate delivery should be done at the first.

DR. W. L. BURRAGE showed a sterilizer.

## Recent Literature.

*A Manual of Organic Materia Medica and Pharmacognosy.* An Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Drugs, Comprising the Botanical and Physical Characteristics, Source, Constituents, and Pharmacopœial Preparations. With Chapters on Synthetic Organic Remedies, Insects Injurious to Drugs, and Pharmacal Botany. By LUCIUS E. SAYRE, Dean of the School of Pharmacy, Professor of Materia Medica and Pharmacy in the University of Kansas, etc. With 543 Illustrations, the majority of which are from original drawings. Pp. xx, 555; 8vo. Philadelphia: P. Blakiston, Son & Co. 1895.

This work is rather a new treatise than a revision of the author's earlier "Organic Materia Medica and Pharmacal Botany," which appeared in 1879.

The 624 drugs mentioned in this new work are classified according to physical characteristics and also according to their botanical relationship, but by a system of numbering, their place in either classification is at once apparent. The nomenclature and general character of the text conform to that of the last revision of the United States Pharmacopœia, unofficial drugs being distinguished, however, by a different type and setting of the article.

The 222 illustrations in Part I are, except those of the starches, taken mainly from Bentley's "Manual of Botany." Most of the remaining 320 illustrations in the work are new, and were prepared under the direction of C. E. McClung, Ph.G. (Kansas University 1892).

The preparation of the text and illustrations have been creditably done, and the work is one that students and teachers of materia medica and pharmacognosy will find very useful. B. F. D.

*A Treatise on the Diseases of the Ear.* By T. MARK HOVELL, F.R.C.S. Edin., M.R.C.S. Eng. London: J. & A. Churchill. Philadelphia: P. Blakiston, Son & Co.

Of the 697 pages of this book 81 are devoted to a description of the structure and functions of the ear, and the remainder to a consideration of the various diseases and their treatment; there are 122 excellent wood-cut illustrations in the text; and these together with the systematic arrangement of the subject-matter and the plan of beginning important paragraphs with headlines to attract the eye, make the book a convenient one for purposes of reference, while more careful reading shows that the author has not only brought to bear upon his subject the results of a valuable personal experience, but has taken into consideration, and used

for purposes of comparison, the work of other writers. An example of this is to be found in the chapter upon the mastoid operation, while, on the other hand, the question of middle-ear operations is dismissed in a few paragraphs.

The following remarks upon the removal of adenoid growths may be read with interest in view of the differences of opinion among rhinologists as to the method of treating this condition.

"Owing to the frequency with which this disease occurs, a large number of patients have to be operated upon at hospitals and on account of the time occupied by the administration of the anesthetics, there is a tendency among some surgeons to remove the growths without the patient being anesthetized. If the object aimed at was merely to re-establish nasal respiration, no great amount of harm would be done by adopting this course; but as the middle ear is very frequently affected, it is most important to remove the source of the naso-pharyngeal catarrh which usually co-exists. This end will not be gained if portions of growth are allowed to remain; and I am well aware that this usually occurs when the operation has been performed without the patient being anesthetized. At the present time, sufficient attention has not been paid to the ear complications associated with post-nasal growths by surgeons who do not make a special study of aural diseases; but it is to be hoped that they will soon awaken to the fact that the establishment of free nasal respiration should not be the only object for which the operation is performed.

"With regard to the choice of anesthetics, it is best in most cases to place the patient fairly under ether, and to keep up the anesthesia with chloroform whilst the actual operation is in progress. An exception must be made, however, when dealing with infants, and in their case chloroform or the A. C. E. mixture should be employed in preference to ether. Many surgeons prefer chloroform throughout for all cases; and, at first sight, this anesthetic appears to be specially indicated. But in addition to the greater safety of ether as a routine anesthetic, it is certainly far safer than chloroform in operations about the naso-pharynx, involving free hemorrhage. The deep and audible breathing under ether; the tendency to occasional coughing and swallowing which attends its administration; the remarkable manner in which the circulation holds out, when, as occasionally happens, respiration becomes temporarily interfered with during the operation; and the rapid and permanent cessation of hemorrhage after the anesthetic has been withdrawn, are all weighty reasons for selecting this agent. It is true that patients breathe more easily under chloroform, and hemorrhage may be less during the operation; but the noiseless manner in which breathing may become obstructed under chloroform; the rapidity with which the circulation runs down should any embarassed breathing take place; and the greater liability to secondary hemorrhage when the circulation becomes brisk with returning consciousness, are all unfavorable points against the use of this anesthetic throughout the operation. When the patient has been placed well under ether, however, small quantities of chloroform may with great advantage be given to keep up the anesthesia."

The work throughout is free from padding, and may as a whole be heartily commended both to the student and the practitioner.

THE BOSTON

# Medical and Surgical Journal.

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## THE MICROBIOLOGY OF ACUTE PERITONITIS.

COURTOIS-SUFFIT, in his recent monograph on "Diseases of the Peritoneum"[1] classes first in order among the pathogenic microbes in peritoneal inflammations the bacillus coli communis. This micro-organism is a facultative anaërobic, a normal inhabitant of the intestines, but pathogenic under morbid conditions such as occur in all kinds of peritonitis of intestinal origin. Its presence has long been recognized in peritoneal exudations, while it is constantly found in septic peritonitis following intestinal wounds, perforating (gastric, typhoid, enteric, appendicular) ulcers, ischio-rectal abscess, cancer of the colon, hernia, thrombosis of the mesenteric vessels, etc. It has been affirmed[2] that under certain circumstances, as when disordered circulation, strangulation, extreme fecal distention, undue pressure or mechanical injury has impaired the integrity of the bowel and lowered tissue-resistance, this bacterium may become migratory, gain the peritoneum, and excite inflammation. Cornil found such bacteria actually in the substance of the wall of a partly necrosed intestine.[3] The possibility of such migration may explain many cases of so-called idiopathic peritonitis attending stercoral impaction, severe bowel inflammations, etc.; the germs passed through the intestinal walls and provoked peritonitis. It is doubtful if peritonitis has ever followed cystitis, yet Achard and Renaut have proved the identity of the colon-bacillus with the bacterium pyogenes of the bladder (Courtois Suffit).

The pneumococcus has very rarely any causal relation to acute peritonitis, whether the infection occur as a sequel to pneumonia or independently of that disease.

[1] Traité de Médecine, t. iii, p. 606.

[2] American Gynecological and Obstetrical Journal, January, 1895, p. 58. (Article by Dr. Richard Douglas.)

[3] Loc. cit., p. 59. The observation has been confirmed by Clado, and independently by Fraënkel in relation to cases of peritonitis following strangulated hernia, even when occurring apart from any solution of continuity or gangrene of the intestine; the microbes, in fact, *pass through* the intestinal walls which are so modified in their vitality as to offer them little resistance.

The streptococcus pyogenes has been found in the pus of a great many cases of peritonitis, where it existed to the exclusion of every other micro-organism (post-operative and puerperal peritonitis). Cases of streptococcus-peritonitis following erysipelas of the face have been reported by Cheurlin [4] and others, and in rare instances this disease has succeeded scarlet fever, a malady in which the streptococcus seems to have a predominant part.

Penetration, by the microbes, of the abdominal wall is said in rare instances to have taken place in cases of erysipelas of the abdominal integument; and puerperal peritonitis from extension of a streptococcus-inflammation from the pelvic peritoneum and uterine cavity is of very common occurrence.

Acute peritonitis has been in numerous instances ascribed to the staphylococcus (aureus and albus) found apart from other micro-organisms in the pus (Fraënkel). In other cases, the staphylococcus was associated with the streptococcus, or with the rod-shaped or round micro-organisms of putrefaction. The saprogenous microbes seem to have been influential in certain cases. The colon-bacillus is probably a bacterium of saprogenous character, with possibilities of greatly exalted virulence.

Suppurative salpingitis is a recognized cause of acute peritonitis. When the salpingitis has developed under the influence of the true pyogenic organisms (streptococci and staphylococci), a generalized peritonitis which is almost always fatal follows the rupture of the tube. The case is not so serious, according to Bumm, when the salpingitis succeeds gonorrheal infection, and in which the exudates contain only the diplococcus of Neisser. The latter micro-organism, Bumm says, can exert its action only on mucous membranes, being inoffensive to the serosa and cellular tissue. Naturally, then, the rupture of such a pus tube, or the leakage of pus from the fimbriated end into the peritoneum would not be followed by a general septic peritonitis, but the exudate would be resorbed like any aseptic fluid.

With regard to the effect on the peritoneum of rupture of one of the hollow organs of the abdomen, the result, as Courtois-Suffit remarks, is variable, depending on the presence or absence of microbes in the extravasated fluid. The bursting of the healthy bladder with effusion of normal urine into the peritoneal cavity is not followed by acute peritonitis. This has been proved by the experiments of Gosselin, Robin, Albarran, and others. The case is altogether different when the urinary passages are infected and the urine contains the streptococcus pyogenes, the septic bacterium of Clado, or other pyogenic organisms.

What is true for the urine is equally exact for the bile, as abundant experiments on animals have shown. This is made plain by Dupré in his now classic work on "The Biliary Infections." But the biliary passages and the bile may become infected from various causes, and rupture of the gall-bladder would then be followed by a fatal peritonitis. A case of this kind has been reported by Fraënkel, who found in the peritoneal exudate streptococci and staphylococci.

Penetrating wounds of the stomach allowing small quantities of gastric juice and other contents to escape into the peritoneal cavity are not necessarily fatal if the wound be not large, and the leakage not great. The stomach is not a good culture field for pathogenic microbes, the gastric juice being aseptic and antiseptic. The result of a penetrating wound of the stomach or a perforating ulcer will, of course, be far graver if the stomach or its secretions has become pathologically altered, and if there be considerable escape of its contents into the peritoneum.

When the intestine is the source of the peritoneal lesion, whether by traumatism or profound ulceration, the peritonitis is likely to be spreading and fatal, especially if there be a massive infection. The microbes which are chiefly concerned are those which are found in a normal state in the intestine; the coli-communis, the bacillus albuminis (Bunstock), the bacillus mesentericus vulgatus, the septic vibrio of Pasteur. There is a law laid down by Malvoz, which, as far as it is accurate, may be of help from a medico-legal point of view. If the peritonitis be of intestinal origin, the bacterium coli will show it; if it be of uterine origin (as when consecutive to abortion), the presence of the streptococcus will prove this, even though there should be no visible inflammatory lesions of the genital organs.

[4] Thèse de Paris, 1879.

## THE SIXTEENTH ANNUAL REPORT OF THE MASSACHUSETTS STATE BOARD OF LUNACY AND CHARITY.

INCLUDING the short life of "that grotesque alliance," the State Board of Health, Lunacy and Charity, the Massachusetts Board of Lunacy and Charity will have been in existence sixteen years next June. Thirty-five members have been appointed to the board, of whom one has recently resigned, although his term of service expires next June. Eighteen others have resigned during their terms of service; two have died in office. The membership of the board is nine; and they serve without pay.

The apparent readiness of gentlemen to decline service on the board cannot be from a failure of the legislature to provide opportunities for usefulness or liberal appropriations of money.

The powers and duties of the board include the supervision, visitation, and inspection of all public and private institutions for the insane, the State Almshouse, the State Farm, the three State Schools, the city and town almshouses containing insane inmates, and all places where State paupers are supported; the care and custody of insane patients boarded in families; the supervision of juvenile offenders, including attendance in court in the interest of such offenders; the care and maintenance of indigent and neglected children boarded in families, and the visitation of all minor wards of the State in families; the licensing of boarding-houses for infants, and the prosecution of

cases of violation of the infant-boarding law; the removal of non-settled paupers to other States and countries; the administration of the laws concerning the support of State paupers by cities and towns; the prosecution of cases of bastardy among non-settled persons; the tabulation of returns from overseers-of-the-poor of paupers supported by towns; and the care and maintenance of alien immigrants falling into distress within a period of one year from the time of their landing. In addition to its power of transfer of patients from one State charitable institution or hospital for the insane to another, the board has the power of discharge from the State Almshouse and sole power of discharge from the State Farm and the State Primary School, and also shares with the trustees of the hospitals for the insane the power of discharge therefrom.

The sixteenth report[1] of the board is chiefly a detailed statement of excellent work for the year. The insane at the close of the year were 5,551 in hospitals and asylums, 809 in town almshouses, 211 in private families. The children cared for were 524 in institutions, 1,459 self-supporting in families, 582 at board in families. There were 159 licensed houses for boarding infants, of whom there were 1,156 including 526 illegitimate. The visits to the sick poor were 9,316, and these involved 497 persons and 246 patients where provisions had to be made on account of diseases dangerous to the public health — 125 small-pox, 36 scarlet fever, 23 diphtheria and 10 measles.

Since State supervision of immigration began, in 1848, the number of immigrants at the port of Boston has been 986,460.

The State Institutions under the general supervision of the Board are the State Primary School, the Lyman School for Boys, the State Industrial School for Girls, the State Almshouse, the State Farm, the Hospitals for the Insane at Worcester, Taunton, Northampton, Danvers and Westborough, the Asylum for the Chronic Insane, the Hospital for Dipsomaniacs and Inebriates. The School for the Feeble-Minded and the Hospital Cottages for Children are only partly under State Control. Its supervision of the Boston Lunatic Hospital, the McLean Hospital, and seven private insane asylums is little more than nominal.

Much is said in the report in praise of the McLean Hospital for the Insane, where, in the last thirteen years, 457 of the patients admitted have been without certificates of commitment, under the admirable law of 1880 which allows voluntary admissions to hospitals for the insane. The many excellent features of this hospital place it in the front rank of institutions of its kind in the world.

Such a vast amount of labor naturally implies faithful and intelligent service on the part of highly-trained salaried officers and their assistants, and devoted work by the members of the board. The visitation of young girls boarded in families is by eighty-one carefully chosen ladies who live near enough to their wards to be familiar with their needs and who volunteer their services.

The board makes several recommendations for legislation in which the medical profession has an opportunity to show its interest; providing for the appointment of medical examiners in lunacy;[2] providing for medical certificates of lunacy to be issued by the State Board; amending the law which prevents physicians of insane hospitals from certifying to cases of insanity; making separate provisions for adult epileptics.

[1] Public Document, No. 17. Sixteenth Annual Report of the State Board of Lunacy and Charity of Massachusetts. January, 1895. Boston: Wright & Potter Printing Co., State Printers, 18 Post-Office Square. 1895.

## HAFFKINE'S INOCULATION AGAINST CHOLERA.

AT the Indian Medical Congress Haffkine made a report on his method of inoculation against cholera, and the results attained up to the present time. The virus which he employs is obtained by the cultivation of attenuated cholera bacilli in the peritoneal cavities of guinea-pigs. He portrayed the difficulty which he had had in overcoming the prejudices of the people against inoculation; a year had passed before he was able to carry out his method in suitable places, and under favorable conditions.

In upper India he had inoculated 22,603 persons; in Bengal, Behar and Assam, 9,563; in all, 32,166, of which records were kept. Yet the month of March, 1894, was the first in which he was able to perform 1,000 inoculations during a moderately severe epidemic in Calcutta, and in the part of the city where the epidemic was most prevalent. In all, 3,478 persons were inoculated in Calcutta during 1894.

The method pursued was that of inoculating a part of the members of certain households, in which an outbreak of cholera was thought likely to take place. In 13 houses, 85 out of 181 persons living under the same sanitary conditions were inoculated. Among those inoculated 1.18 per cent. died of cholera; of those not inoculated 15.03 per cent. "took" the disease, and 11.63 per cent. died. In August, 1894, cholera broke out in the garrison at Cawnpore, 872 strong; of this number 75 had been inoculated thirteen months before. There were 19 cases and 13 deaths, all among the soldiers who had not been inoculated. The results in Gaya jail were also favorable, those in Lucknow less so, where 18.7 per cent. of the cases were among the non-inoculated, and 13.53 per cent. among the inoculated. The following table gives a summary of the results at Calcutta, Gaya, Cawnpore and Lucknow.

| | Non-Inoculated. | Inoculated. | Total. |
|---|---|---|---|
| Number of observations | 1,735 | 500 | 2,235 |
| Cases | 174 | 21 | 193 |
| Per cent. | 10.63 | 4.20 | |
| Deaths | 113 | 19 | 132 |
| Per cent. | 6.51 | 3.80 | |

Haffkine holds that if any conclusion can be drawn from this tabulation, it must be a favorable one. At all events his experience so far has demonstrated the entire harmlessness of the inoculations.

[2] When we use the objectionable words lunacy and lunatic, it goes without saying that we quote them.

## MEDICAL NOTES.

OBSTETRICAL SOCIETY OF CINCINNATI. — At its recent annual meeting the following officers were elected for the ensuing year: President, Dr. A. W. Johnstone; Vice-President, Dr. Sigmar Stark; Secretary, Dr. E. S. McKee; Corresponding Secretary, Dr. W. D. Porter; Treasurer, Dr. Geo. E. Jones.

DIPHTHERIA IN LONDON AND NEW YORK. — During the last week in January there were but 29 deaths from diphtheria in London, a progressive fall having taken place from 50 deaths in the week ending January 5th. The close correspondence in time with the report given in the last number of the JOURNAL of a falling off of 25 per cent. in the cases of diphtheria in New York City during the same period is extremely interesting. If, as is thought by the health-officers of New York, the abatement in that city is due to the use of antitoxin, may not the decrease in London be due to the same cause? It is also noteworthy that in Paris, between January 20th and 26th, there were but 7 deaths from diphtheria, the average for past years being 33.

"COMMITTEE ON LITTER." — The following members of the "Committee on Litter," appointed by the Association of Military Surgeons of the United States, to report a desirable form of military litter for the comfortable, safe and expeditious transportation of the sick and wounded, solicit from medical officers of the National Services and the National Guard of the several States, suggestions, plans or models of such an appliance, to be delivered to either of them, on or before the first of April, 1895: Albert L. Gihon, Medical Director, U. S. Navy, U. S. Naval Hospital, Washington, D. C.; John Van R. Hoff, Major and Surgeon, U. S. Army, Governor's Island, New York Harbor; Myles Standish, Captain Ambulance Corps, M. V. M., 200 Dartmouth Street, Boston, Mass.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, February 20, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 82, scarlet fever 40, measles 29, typhoid fever 6.

CONVENTION OF SUPERINTENDENTS OF TRAINING-SCHOOLS FOR NURSES. — The second annual convention of the American Society of Superintendents of Training-Schools for Nurses was held in Boston during the three days beginning Wednesday, February 13th. The programme of the convention consisted of business meetings, at which papers were read on subjects connected with the training of nurses and the management of training-schools. "A Uniform Curriculum of Study for Training-Schools" was the subject of a paper and discussion. A reception was given to the Society at the Boston City Hospital, and another at Perkins Hall, by the Graduate Nurses Association. Visits were made by the Society to the hospitals of Boston and vicinity. The Superintendents of most of the larger training-schools of this country attended the convention.

THE BOSTON TRAINING-SCHOO FOR NURSES. — The report of the Boston Training-School for Nurses, attached to the Massachusetts General Hospital, for the year 1894, has just been issued. The year is considered to have been a satisfactory one, the character of the pupils having been of a high standard, and the instruction given having been broadened and increased in interest. The expenses of the school, however, have been unusually heavy; and, owing to the death or absence of several annual subscribers, the income has largely fallen off. The treasurer reports a deficit for the first time. The need of funds is therefore a very serious one, and for the lack of them the usefulness of the school is curtailed in many directions. The school is not a corporate part of the Massachusetts General Hospital, and the heavy running expenses must be met out of its own funds. Subscriptions of any amount from friends of the school are desired. The accepted probationers were 37 out of 834 applications. 23 were graduated during the year. An important development in the instruction given was the establishment of the cooking-school on a new basis. This work had hitherto been done outside the hospital. Through the efforts of the directors and the kindness of the hospital trustees the cooking-classes are now held in the hospital kitchen.

ALUMNÆ ASSOCIATION OF BOSTON TRAINING-SCHOOL FOR NURSES. — Fifty graduates of the Boston Training-School for Nurses met at the Thorndyke, Thursday afternoon, February 14th, and formed an Alumnæ Association. The Association is to be called "The Alumnæ Association of The Boston Training-School for Nurses, attached to the Massachusetts General Hospital." Miss Maria B. Brown, superintendent of the school, was elected President of the Association by acclamation. The other officers elected were Miss Alice O. Tippett, Vice-President; Mrs. D. H. Kinney, Treasurer; Miss Florence F. Rice, Secretary; Miss Blanche M. Thayer, Miss Elizabeth McPhail, Miss Lucy Webster, Miss Carline Cayford, and Mrs. Mary Bryant, were appointed as a special committee to assist in framing a constitution. Miss Davis, Superintendent of University Hospital, Philadelphia, and Miss Sophia Palmer, of Washington, D. C., who have been prime movers in bringing about the meeting, were present, and stated the object of the meeting and need of an association. Miss Richards and Miss Anna A. Maxwell, both former superintendents of the school, were also present; and each in a brief address expressed her interest and sympathy in the movement, urging the necessity of alumnæ associations to keep graduates of a school in touch and sympathy with each other, also to foster a kindly feeling towards members of the nursing profession who are graduates of other schools. The meeting was then adjourned to meet March 14th, hour and place of meeting to be appointed by the president of the Association.

Diagnosis of Diphtheria at Hartford, Conn. — The Hartford Board of Health has provided facilities for the bacteriological diagnosis of diphtheria in that city, being the first city in the State to take this step in public hygiene.

Notification of Contagious Diseases in Connecticut. — The *Monthly Bulletin of the State Board of Health of Connecticut*, for January, calls the attention of the local health officers to the fact that reports as to the prevalence or non-prevalence of contagious diseases have been made to the State board by only about one-half of the towns in the State. Unless such reports are sent in, it is impossible to obtain a knowledge of the public health sufficient to ensure prompt and efficient action by the State board for the restriction and control of contagious diseases. It is also important, when no cases of contagious diseases have occurred, for the State board to be notified of the fact. A failure to make prompt and accurate monthly returns to the central board is hardly indicative of a proper conception of his duties on the part of a local health officer.

NEW YORK.

Another Case of Small-Pox. — The first report of a case of small-pox in the city since January 29th was made on February 12th. At that date there was but one small-pox patient at the Riverside Hospital on North Brother Island.

Dr. Vander Veer Appointed Regent. — On February 13th Dr. Albert Vander Veer, of Albany, was elected by the legislature Regent of the University of the State of New York.

The Hospital Book and Newspaper Society. — The twentieth annual report of the Hospital Book and Newspaper Society states that the amount of reading matter distributed during the past year was as follows: Books, 6,310; magazines, 18,853; illustrated papers, 63,326; newspapers, etc., 152,385.

Death-Rate of New York City. — The number of deaths reported during the week ending February 16th was 959, an increase of 37 over the mortality of the preceding week, and 95 above the average of the corresponding weeks for the past five years. The number of deaths from diphtheria was 29, a decrease of 10 from the week ending February 9th.

## Miscellany.

### THE MISSING LINK FOUND AT LAST.

Dr. D. G. Brinton writes to *Science* under this title, and says that Dr. Eugene Dubois, a Dutch army surgeon stationed in Batavia, Java, has found the "link." He, the surgeon, describes three fragments of three skeletons which have been exhumed from the early pleistocene strata of Java, and which introduce to us a new species, as well as a new genus and a new family, of the order of primates, placed between the *Simiidæ* and *Hominidæ*.

The material, we are told, is sufficient for a close osteological comparison. The cubical capacity of the skull is about two-thirds that of the human average. It is distinctly dolichocepalic, about seventy degrees, and its *norma verticalis* astonishingly like that of the famous Neanderthal skull. The dental apparatus is still of the simian type, but less markedly so than in other apes. The femora are singularly human. They prove beyond doubt, says Dr. Brinton, that this creature walked constantly on two legs, and when erect was quite equal in height to the average human male. Of the various differences which separate it from the highest apes and the lowest men, it may be said that they bring it closer to the latter than to the former.

The line of descent, according to Dr. Dubois is: *Prothylobates, Anthropopithecus sivalensis, Pithecanthropus erectus, Homo sapiens.*

The discovery of Dr. Dubois leads him to think that man originated on the southern slopes of the Himalayan chain, which is, after all, not so far from the Garden of Eden; and is just south of the present abode of the mystical Mahatmas. We trust that Dr. Dubois is *homo sapiens.* — *Medical Record.*

### BICYCLE RIDING FOR WOMEN.[1]

"At the meeting of the Société de Médecine Publique, Mme. Gaches-Sarrante read a paper on the utility of the bicycle for women. For the last three years she has been practising this masculine exercise to the great benefit of her health. Alluding to the costume to be adopted, she insisted on the fatigue produced by the corset; the least up-hill provokes oppression from the stricture of the thorax. As regards the genital organs, all acute inflammation should forbid the use of the machine; but when the lesions were chronic, moderate exercise might be permitted and even enjoined. In any case, riding is much less fatiguing than standing or walking. Salpingitis, or chronic salpingo-ovariatitis, do not constitute a counter-indication, and in cases of chronic peri-uterine inflammation the bicyclette can replace with advantage the Swedish method of massage.

"Bicycling exercises, consequently, a healthy influence on the physical nature of women; they sleep better, digest better, their chest expands so as to find it necessary after a short time to enlarge the corsage of their robes. Mme. Sarrante concluded by drawing a vivid picture of the moral rôle of the bicyclette, the only physical exercise that husband and wife can take together."!

### TOTAL RESECTION OF THE STOMACH.

Langenbuch reports in the *Deutsche med Wochenschrift*, 1894, No. 52, two cases in which almost the entire stomach was removed for carcinoma, with one recovery and one death. The successful case was that of a woman fifty-eight years old. The new growth occupied the posterior wall of the stomach, but there were nodules on the greater curvature, extending into the greater omentum. The stomach was brought out through the abdominal wound, and about seven-eighths of it removed. On suturing the cardiac to the pyloric

[1] From the Paris Correspondence of the Medical Press and Circular, December 26, 1894.

stump, the newly formed stomach was about the size of a hen's egg. It was fixed by gauze and sutures in the abdominal wound. The operation occupied one and three-quarter hours, and very little chloroform was used, the anesthetist claiming that only ten drops (!) were employed. On the evening of the day of the operation a little milk and egg with sugar was given by mouth and retained, and on the day following the operation liquid nourishment was given repeatedly. On this day the pulse and temperature were so that the patient was regarded as lost, but fell to normal on the following morning. The patient had a slight attack of pneumonia during convalescence but gained twenty-two pounds before she left the hospital several weeks after the operation.

In the second case, which was operated in a similar manner, the stomach was so softened, that rupture at the cardiac extremity took place during its removal. The opening was closed by sutures, however, and the operation completed. On the second day the dressings were found soiled with gastric contents, and it was evident that some of the sutures had given way. An attempt was made to introduce a tube through the gastric fistula into the duodenum, but the effort to accomplish this so disturbed the parts that local peritonitis occurred, resulting in death on the sixth day. At the autopsy the peritonitis was found to be local, and not to have involved the general peritoneal cavity.

## Correspondence.

### THE INVALID TOURIST.

A Bête Noir in Southern California.

REDLANDS, SAN BERNARDINO CO., CAL., February 3, 1895.

MR. EDITOR: — For the past ten years invalids, especially consumptives, have frequented Southern California in great numbers. The majority of these were in the last stages of the disease before leaving home, and expected the climate to work a miracle. Given up by their physicians, and beyond the reach of any relief from medicines, these unfortunates have made the long and tedious journey to the Pacific Coast only to die there, or to make the same hurried journey back again for the consolation of dying among friends. Hundreds of them have died in Pullman cars or at way stations *en route*.

During these same ten years, and particularly during the last three or four, the press, including medical journals, magazines and newspapers, has been full of articles upon the danger of contagion in cases of consumption. In this way the public has been educated to a horror of the disease. It is asserted that one-seventh of the human race are dying of consumption. And the fact has been carefully impressed upon the minds of the remaining six-sevenths that any chance breath may fill their lungs with virulent microscopic germs floating in the air in the neghborhood of consumptives.

Now, there are in Southern California few sanitariums. Either from a lack of patronage or from unskilful management, such institutions have not flourished. Not one consumptive in a hundred will go to a health-resort, managed strictly as such, a place where he can be properly cared for and nursed, and kept from contaminating the atmosphere which well people are supposed to breathe. Not one in a hundred will admit that he has consumption. It is always "a little throat trouble," or "a touch of *la grippe*." Hence it happens that nearly all of these invalids expect to be received into resort hotels, already partially filled with pleasure-seekers, investors, and residents of the country. These have been educated, as just stated, to a fear of consumption second only to the popular fear of cholera or yellow fever.

As a class, the keepers of these hotels are humane men and women. They desire to do what is right and to assist the unfortunate; but it puts one of them in a very trying position when a guest arrives whose chances of living a week are perhaps not one in ten, and whose cavernous cough can be heard the length and breadth of the dining-room. Within twenty-four hours after such a guest arrives a dozen healthy, and therefore desirable, guests will probably call for their bills and seek other quarters. What is the landlord to do in such a case?

Tell the would-be guest that he cannot be received, of course. Yes, but that might result in great hardship. The man may arrive in the evening. The other hotels may be filled, or, if not, are equally unwilling to receive invalids. Rooms may have been engaged in advance, the coming guest neglecting to say that he brings a plague with him. It is hardly polite or dignified to inform him, after he has already been cordially welcomed by mail, that the rooms reserved for him are occupied by another. It is equally hard to "come out flat-footed," and tell a despairing man, perhaps accompanied by an equally despairing wife or mother, that he cannot be given food and shelter.

Send him to some private family, suggests another. That would be very well for him, if families would receive him. But they are even less willing to do so than the hotels; and, being private families, they can easily refuse, although it may be understood that they "take boarders." There are no families in Southern California that are not educated regarding the danger from consumption, and there are very few willing to run that danger for any amount of money.

The result usually is that the guest is received, temporarily at least. If he is alone the landlord looks after him as best he can in the press of his other duties. If he dies the landlord remains with him, as he crosses the dark river, and gives him the feeble aid of a friendly hand-clasp. No one can be hired for this duty. Then he wires the unfortunate's family, arranges with the undertaker for the things that must be done, and writes a letter to the dead man's home, describing his last hours. There is nothing fanciful in this picture. It is understated rather than overdrawn, and it occurs every few days during the tourist season. When the duties mentioned are all done, there remains the task of cleaning and disinfecting the room lately occupied. Every article of furniture must be taken out. The walls and ceiling must be cleaned with disinfectants, and after this is done, and the articles removed are restored to their places, the room must remain vacant perhaps a fortnight, until it loses its odor of drugs and the guests forget that there has been a death in it. For all this worry, expense and delay, as a rule, the landlord receives nothing whatever.

If the invalid is accompanied by friends the landlord, of course, has less responsibility. But the strain upon his sympathies, if he has any, is often even greater. "What are you doing here?" I asked one day of a friend at a railway station. He pointed at a long, narrow box, which the trainmen were placing in the baggage-car, and then at a couple of girls who stood at the door of the depot, evidently prepared to take the overland train.

"Came over to see them off," he said. "Poor children. It's a sad case. They came out with us from Chicago a week ago. That's their mother in the box. Been here just a week. Going back with the body to-day. Excuse me, I must see them aboard."

There the two children were, brave little things, the elder perhaps sixteen, but very girlish, the other three or four years younger. The father was in Chicago, doubtless unable to leave his business. My heart ached for them as I thought of the mournful journey before them. But nothing more could be done to help them.

The reflection which occurs to a layman in such a case is naturally about as follows: "Why was that woman permitted to go West? Was not her death an absolute

moral certainty in the mind of her physician, and should he not have insisted upon her remaining at home? Why add to the horrors of her inevitable and speedy death the tortures of that long journey westward and the dread overshadowing her last hours, of that even more wretched trip homeward, which her children were obliged to take?"

I have known twelve of these deaths to occur in a single little country hotel, of forty rooms, in one season. Sometimes the proprietor of such an hotel is put in a position where it is absolutely impossible for him to entertain such guests. It may mean simply ruin for him. Only the other day I asked a certain young man how they were getting along at a hotel in which I had a friendly, but luckily not a financial, interest. "Got another consumptive," he said. "Bad case this time. Everybody ready to go out through the windows." In this instance the landlady became desperate, and finally told the invalid and his wife that they must leave the house. In her excitement and dread of the interview she probably lost her usual tact and said more than she intended. At least there was considerable talk about the occurrence. A good Samaritan, hearing of it, took the man home, saying that he should be cared for as long as he lived. That period was just three days, and he was not in California more than two weeks.

Thousands of people are living in Southern California who went there in early stages of disease and received a benefit from the climate without which they would probably have perished. Scores of others would be alive to-day, who are dead, but for that curious mania for overtaxing their strength which seizes so many who begin to recover. A long walk, a fatiguing horseback-ride, exposure to the air half an hour later than usual, some trivial thing of this sort, undoes the slow and careful work of months, and kills many a promising convalescent. Equally fatal is the tendency to homesickness. Many an invalid has partially recovered his health, and then sacrificed it for a single visit to his former home, incurring some fatigue, or risking some exposure that exhausted the slender store of dearly acquired vitality and brought on a fatal relapse.

Of the several hundred cases of advanced consumption which have come under my personal observation, during a residence of seven years in Southern California, I should say that about one per cent. are cured. I have an acquaintance, a hale and hearty, rugged man, who is said to have been a skeleton when he reached the country. I met another man, a policeman, in Los Angeles, a few years ago, who told me a singular story. He said that when he reached that Mecca of the invalid, Los Angeles, he was suffering from what was pronounced a case of tuberculosis. He could barely walk, and was too weak to carry his valise from the 'bus to the hotel office. He had some twenty thousand dollars, and might have stopped, and died, at one of the best hotels. Instead, he gave the money into the care of a friend, and went, alone, into the high mountains back of San Bernardino. He built a rude hut, and lived almost entirely upon trout and quail caught by himself. When I knew him he was tall, erect and ruddy, and no one would have thought that he had ever been an invalid; but I believed his story to be true.

The third case that I believe to be recovery from pronounced tuberculosis as a result of residence in Southern California, I have watched with interest for three years, and desire to mention at some length, as it shows how invalids coming to Catifornia should live. In this instance consumption followed an attack of pneumonia. The invalid was about thirty years of age, and had possessed a splendid constitution, uninjured by disease or dissipation of any kind. A young woman, strong, cheerful and perfectly well, thought enough of him to marry him after his illness began and to come to California with him.

Their physician advised this couple to live in a tent, and they did so. The first summer was a very hard one. The weather became too warm in the valley and they went to the mountains. Here the invalid's strength failed so rapidly, on account of the heat, that they were obliged to make a hurried trip to the coast, where he recuperated. But it seemed for a long time very doubtful whether he could rally. In the following fall they abandoned their small tent for a more elaborate "tent house," in which they lived for more than a year. This was destroyed by fire, and they built a still better one. It has a foundation and floor like any house. For five or six feet from this the walls are of wood, the rest of the way they are of canvas. Tbere is a double roof, one of canvas and another of the ordinary sort, with about two feet of air space between. The interior is divided into five or six handily arranged rooms. It is finished in red wood, varnished but not painted. The lot, house and furniture cost about seven hundred dollars. It is warmer in summer than a wooden house would be, but it cools very rapidly at night. A single fire keeps it warm in the severest winter weather. Living in it is the next thing to living out-of-doors. The owner is always sure of pure air without danger of draughts. He is recovering a degree of health, after a long and tedious struggle, a difficult period of incessant watchfulness. He has a small fruit-ranch upon which he spends some of his time in out-door labor. But even now, three years after his first illness, when his cough has nearly left him, he practises infinite precaution, is never out of his home after four o'clock, except in mid-summer, and, in matters of dress, etc., never forgets for an instant that he is an invalid. Profiting by the experiences of others, he has no desire to return to the East, even for a short period. He will doubtless make as complete a recovery as is possible after so severe an attack of so virulent a disorder.

The logical conclusion from these facts would seem to be that persons in an advanced stage of consumption might better remain at home than to clutch at that last straw of hope, a journey West; and that those who seem to have a fair "fighting chance" against this dread destroyer, who go West, should go with a better understanding than is usual of the conditions awaiting them on arrival. Since these people will not live together, in hospitals or sanitariums, each cherishing the delusion that he is not a victim to consumption, each believing that he would risk infection by associating with consumptives, they should come prepared, as far as possible, to live by themselves. There are always cottages to be rented in any Southern California town, if the invalid does not care to follow that best plan of all and to construct a tent-cottage. Housekeeping is cheaper than hotel living and infinitely better. The patient may be more quiet, and he may have such articles of food prepared as he desires, a very decided advantage over hotel life. Southern California is full of warm-hearted, sympathetic people, and no one following the plan suggested need fear that he will be totally isolated among strangers. On the contrary, he will soon learn that his course will be approved, and that he will find friends.

But to come, as I have seen hundreds, alone, to a strange town and an unfamiliar way of life, to take a cheap room, in a cheap hotel and there to live upon cheap food, hastily served, to spend day after day lounging in the sunshine, or, in bad weather, confined to the narrow walls of a little room, in either case with insufficient exercise, to shun all bearing the same unmistakable marks of a terrible disease, to be shunned by all others — such a course is simply placing one's self in the clutch of death, like a mouse in the claws of a cat, to be a plaything for a little while, before the final, inevitable blow. Such a procedure is of benefit only to the railroad companies and the undertakers; and the sensible, thinking people of Southern California, who see it so often, are coming more and more to wonder at the ignorance which prompts it. In many cases absolutely beyond help the victim is a poor man, and the money expended in this useless pilgrimage might far better be kept for a few comforts to ease his last days and for the support of his family. In thousands of other cases, where the element of expense is of no importance, the result is the same; and the journey, undertaken, perhaps, with high hopes, and followed out with every attention and comfort that money can buy, ends in swift and crushing disappointment.

Very truly yours,

Wm. M. Tisdale.

## METEOROLOGICAL RECORD,

For the week ending February 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r.* | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S .. 3 | 30.26 | 18 | 24 | 11 | 57 | 70 | 64 | N. | N.W. | 12 | 8 | C. | O. | |
| M.. 4 | 29.94 | 22 | 24 | 21 | 92 | 86 | 89 | N.W. | N.W. | 11 | 13 | N. | N. | 0.11 |
| T .. 5 | 29.86 | 8 | 13 | 3 | 49 | 50 | 50 | N.W. | W. | 14 | 20 | C. | C. | 0.01 |
| W.. 6 | 29.79 | 4 | 13 | -6 | 51 | 50 | 50 | W. | W. | 26 | 18 | C. | C. | |
| T .. 7 | 29.67 | 8 | 14 | 1 | 71 | 80 | 76 | W. | N. | 11 | 12 | F. | O. | |
| F .. 8 | 28.93 | 19 | 36 | 2 | 68 | 58 | 62 | S. | W. | 25 | 33 | N. | C. | 0.83 |
| S .. 9 | 29.37 | 8 | 17 | 0 | 69 | 61 | 65 | S.W. | W. | 13 | 13 | F. | O. | |
| ☞ | 29.70 | | 20 | 5 | | | 68 | | | | | | | 0.95 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 9, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,956,000 | 921 | 314 | 9.90 | 20.57 | .22 | 5.39 | .99 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,487 | 455 | 148 | 14.74 | 16.72 | 2.20 | 8.56 | .44 |
| Brooklyn | 1,013,000 | 469 | 181 | 10.71 | 22.68 | .21 | 7.98 | .21 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 187 | 64 | 10.07 | 16.96 | — | 6.89 | 2.12 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 295,000 | 97 | 23 | 7.21 | 15.45 | — | 6.18 | — |
| Cincinnati | 325,000 | 128 | 31 | 7.80 | 20.28 | 1.56 | 4.68 | — |
| Cleveland | 395,000 | 85 | 30 | 5.90 | 22.42 | — | 1.18 | 3.54 |
| Pittsburg | 272,000 | — | — | — | — | — | — | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 25 | 9 | 8.00 | 8.00 | — | — | 4.00 |
| Charleston | 65,185 | 28 | 9 | 3.57 | 7.14 | 3.57 | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 29 | 11 | 3.45 | 24.15 | — | 3.45 | — |
| Fall River | 92,233 | 38 | 16 | 15.78 | 21.04 | 5.26 | 5.26 | 2.63 |
| Lowell | 90,613 | 32 | 13 | 9.39 | — | 3.13 | — | — |
| Cambridge | 79,607 | 24 | 4 | 12.18 | 33.28 | 4.16 | 8.32 | — |
| Lynn | 65,123 | 18 | 2 | 11.11 | 5.55 | — | 11.11 | — |
| Springfield | 50,284 | 19 | 6 | 15.78 | 15.78 | — | 10.52 | — |
| Lawrence | 49,900 | 13 | 2 | 15.38 | — | — | — | 7.69 |
| New Bedford | 47,741 | 25 | 5 | — | 12.00 | — | — | — |
| Holyoke | 43,348 | 13 | 7 | 30.76 | 15.38 | 7.69 | — | — |
| Brockton | 33,939 | 8 | 2 | — | 50.00 | — | — | — |
| Salem | 33,155 | 10 | 2 | — | — | — | — | — |
| Haverhill | 32,925 | 7 | 3 | 28.56 | — | — | 14.28 | — |
| Malden | 30,209 | 5 | 2 | — | 40.00 | — | — | — |
| Chelsea | 29,806 | 17 | 5 | — | — | — | — | — |
| Fitchburg | 29,363 | 5 | 1 | — | — | — | — | — |
| Newton | 28,837 | 8 | 1 | 12.50 | 25.00 | 12.50 | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 8 | 0 | — | — | — | — | — |
| Waltham | 22,038 | 3 | 3 | — | — | — | — | — |
| Quincy | 19,642 | 6 | 2 | 33.33 | 16.66 | — | 16.66 | — |
| Pittsfield | 18,802 | 10 | 1 | 10.00 | 20.00 | — | — | — |
| Everett | 16,585 | 6 | 4 | 16.66 | — | — | 16.66 | — |
| Northampton | 16,531 | 7 | 4 | 14.28 | 28.56 | — | — | — |
| Newburyport | 14,073 | 3 | 0 | — | 33.33 | — | — | — |
| Amesbury | 10,920 | 1 | 0 | — | — | — | — | — |

Deaths reported 2,709: under five years of age 925; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 288, acute lung diseases 539, consumption 344, diphtheria and croup 161, diarrheal diseases 24, scarlet fever 23, typhoid fever 22, whooping-cough 19, erysipelas 12, cerebro-spinal meningitis 11, measles 10, small-pox 6.

From typhoid fever Philadelphia 8, Washington 6, Brooklyn, Cincinnati and Lowell 2 each, New York and Boston 1 each. From whooping-cough New York 8, Brooklyn 5, Philadelphia 2, Fall River, Haverhill, Quincy and Northampton 1 each. From erysipelas New York 6, Brooklyn 3, Providence 2, Nashville 1. From cerebro-spinal meningitis New York 6, Holyoke, Boston and Pittsfield 3 each. From measles New York 6, Philadelphia, Brooklyn, Cleveland and Springfield 1 each. From small-pox New York and Philadelphia 3 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending February 9th, the death-rate was 19.7. Deaths reported 4,000: acute diseases of the respiratory organs (London) 377, whooping-cough 76, diphtheria 70, measles 48, diarrhea 45, fever 33, small-pox (London) 2.

The death-rates ranged from 11.8 in Croydon to 27.9 in Liverpool; Birmingham 16.0, Bradford 19.8, Gateshead 21.8, Huddersfield 16.8, Leeds 20.3, Leicester 16.9, London 19.0, Manchester 23.5, Newcastle-on-Tyne 21.2, Nottingham 17.0, Portsmouth 14.6, Sheffield 18.6, Sunderland 20.4, Swansea 22.0.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 9, 1895, TO FEBRUARY 15, 1895.

COLONEL CHARLES C. BYRNE, assistant surgeon-general, is relieved from duty as medical director, Headquarters, Department of Dakota, and announced as medical director, Headquarters, Department of the East.

LIEUT.-COL. HENRY R. TILTON, deputy surgeon-general, is announced as medical director, Headquarters, Department of Dakota.

FIRST-LIEUT. GUY C. M. GODFREY, assistant surgeon, will proceed without delay from Fort D. A. Russell, Wyoming, to Fort Omaha, Nebraska, and report for temporary duty.

## OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING FEBRUARY 15, 1895.

PURVIANCE, GEORGE, surgeon. Detailed as chairman, Board for examination of assistant surgeons for promotion, to convene in Washington, D. C., March 11, 1895. February 8, 1895.

HAMILTON, J. B., surgeon. Granted leave of absence for six days. February 7, 1895.

AUSTIN, H. W., surgeon. Detailed as member, Board for examination of assistant surgeons for promotion. February 8, 1895.

IRWIN FAIRFAX, surgeon. Detailed as recorder, Board for examination of assistant surgeons for promotion. February 8, 1895.

STIMPSON, W. G., passed assistant surgeon. To assume temporary command of Service at Port Townsend, Washington, during absence of Passed Assistant Surgeon J. O. Cobb. February 13, 1895.

EAGER, J. M., assistant surgeon. Ordered to examination for promotion. February 9, 1895.

BLUE, RUPERT, assistant surgeon. Granted leave of absence for six days. February 13, 1895.

NORMAN SEATON, assistant surgeon. Ordered to examination for promotion. February 9, 1895.

## SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, on Wednesday evening, February 27, 1895, at 8 o'clock.

Dr. Cumston: "Report of Case of Osteomalacia; Operation; Recovery."

Dr. S. E. Courtney; "Remarks on Four Cases of Eclampsia Occurring at Boston City Hospital."

Dr. C. H. Hare: "Report of Case of Eclampsia; Death."

GEO. H. WASHBURN, M.D., *Chairman.*
J. M. JACKSON, M.D., *Secretary.*

## RECENT DEATHS.

STEPHEN WALLACE BOWLES, M.D., M.M.S.S., died in Springfield, February 12, 1895, aged fifty-nine years.

PROF. J. GOTTSTEIN, the eminent laryngologist, died in Breslau, January 10th, aged sixty-three. He is best known as the inventor of the curette for adenoid growths, which bears his name, and as the author of an excellent text-book on diseases of the larynx. His original work in laryngology has been of the greatest importance in the progress of that specialty.

## BOOKS AND PAMPHLETS RECEIVED.

The Life-Saving Society, Handbook of Instructions for the Rescue of the Drowning. Third revised edition. 1895.

Transactions of the American Orthopedic Association, Eighth Session, held at Washington, D. C., May 29, 30 and 31, 1894. Volume VII. Philadelphia: Published by the Association. 1895.

# Original Articles.

## TRAUMATIC GLYCOSURIA.

### Observations Made in Two Hundred and Twelve Cases of Head Injuries.*

BY F. A. HIGGINS, M.D., AND J. B. OGDEN, M.D.

Ever since the time of Claude Bernard, who first experimentally demonstrated the existence of the so-called sugar centre in the floor of the fourth ventricle, head injuries have been recognized as playing a certain part in the etiology of some cases of diabetes. In addition to permanent glycosuria following traumatism of the head, there is another form observed by some writers, and of which a number of cases have been reported. This last is merely transitory, and comes on directly after the traumatism, or in a few days. On the other hand, the permanent form of glycosuria occurs at a period of weeks, or even months afterwards.

In this article very little work has been directed towards this last form. The work recorded here was undertaken with the purpose of establishing whether any relation exists between various head lesions resulting from traumatism and transitory glycosuria. It is obvious that this could be done only by following out a considerable number of cases such as would be seen in a large municipal hospital. Accordingly, the work has been performed, with the permission of the surgeons of the Boston City Hospital, upon all cases of head injuries, regardless of severity, admitted to the hospital wards during the thirteen months beginning December 1, 1893, and ending January 1, 1895, comprising in all 212 separate cases. The observations are the results of frequent and systematic examinations of the urine, obtained as soon as possible after the injury, and continuing from time to time during the patient's stay at the hospital. This was done in order to ascertain if any connection existed between the nature of the injury, whether mild or severe, and the appearance of sugar in the urine. Further, to see if such a condition when it occurred could render any assistance in diagnosis, especially in those not infrequent cases in which the diagnosis may be obscured or doubtful, such as many so-called fractures of the base of the skull, resulting in recovery with no other prominent symptoms than temporary unconsciousness and hemorrhage from the ear. The pathology of the disease is not entered upon at all, but a number of cases in which autopsies were performed are reported in full.

First will be considered the literature of permanent glycosuria, and second, that of transitory glycosuria.

#### LITERATURE.

The literature of permanent traumatic glycosuria is comparatively meagre, yet traumatism is generally mentioned as one of the etiological factors in most works on diabetes.

A few examples of traumatic glycosuria are found in the works of Seegen, Fritz, Rechtlighausen, Fischer, Mahe, Tood, Cyr, Itzigsohn and Leydon; but Charcot is of the opinion that many of these are more often cases of persistent glycosuria than of true diabetes.

Lyman[1] says, "Injuries (and tumors), especially if they involve the fourth ventricle, are often accompanied by the development of diabetes."

Strümpell[2] says, "Glycosuria may result from severe concussion of the brain and fracture of the skull."

Tyson[3] says, "Excepting the injuries to the nervous system, which are known to cause diabetes, our knowledge of its causes are not precise. With regard to the former, it is well known that blows upon the skull, with or without fracture, and concussions, communicated to the brain, spinal cord and vaso-motor centres in other ways, as by falls, are such causes."

Griesinger[4] found that 13 out of 225 cases which he collected were of traumatic origin.

Luce[5] reports the case of a healthy lad who fell while skating, striking the back of his head heavily on the ice, and died shortly afterwards of diabetes.

Friedrichs[6] out of a large number, could only trace eight cases of diabetes to traumatism.

Baccelli[7] reports the case of a young man who became diabetic after a concussion of the brain. At the autopsy a necrobiotic point was found in the centre of the pons-Varolii.

Vogel[8] reports a case of a fireman upon whose neck a beam fell. In a few weeks there followed a severe glycosuria ending in death. At the autopsy nothing abnormal was found in the brain, and it is thought that diabetes resulted from concussion of the spine.

Senator[9] says that mechanical injuries are among the most important of exciting causes, such as concussion of the brain and spinal cord, or even of the whole body. Glycosuria usually makes its appearance in a few hours or days after the infliction of the injury, rarely not until later.

Lasegue[10] reports a case of glycosuria occurring three months after the accident, in a man who fell down stairs, causing cerebral concussion.

Bernstein-Kohan,[11] out of 45 cases traced 25 to head injuries, and reports that sugar does not always appear immediately after the injury. If the sugar appears early, it is very apt to be mild. If late, it may be severe and rapidly fatal.

Spencer[12] says, "Injuries of the head and spinal cord are often the cause of sugar in the urine. The sugar may last for a few hours only, or for a few days. As a rule, it quickly disappears, but in some cases the sugar persists, and the patients begin to be diabetic from the time of the injury."

Brouardel and Richardiere,[13] in an article on "Traumatic Diabetes from a Medico-legal Point of View," state that traumatism is a well-recognized cause of diabetes, and that in a considerable number of cases in head injuries, examination of the urine reveals sugar when it has been before unsuspected.

This completes, in brief, a summary of the literature touching upon the subject of permanent traumatic glycosuria, and is sufficient to establish the fact that traumatism does play a more or less important part in the etiology of diabetes. With respect to traumatic glycosuria of the transitory form, it has been the object of much less notice on the part of medical writers and investigators. In connection with this form, the work reported in this article has been principally performed. In the works of Alladoff, Schiff, Pavey and Eckhardt, this subject receives but a passing notice.

Redard[14] says, "A glycosuria uniformly presents itself after all forms of traumatism of the head, whether accompanied by fracture or not. It may show itself almost immediately after an accident." He quotes eight cases where it appeared in two days, and a num-

* Being one of the two papers receiving a Second Lyman Prize for the year 1894. This Paper will appear in the Boston City Hospital Medical and Surgical Reports, Sixth Series.

ber of other cases where it appeared after a number of weeks. He affirms that sugar, if carefully sought for, is nearly always found.

Robin [15] reports a case of temporary glycosuria following cerebral concussion, sugar lasting four days.

De Pietro [16] says that after wounds and injuries of the head, glycosuria may last from two to eleven days, according to the severity of the lesion. That it appears later and lasts longer in fractures than in simple wounds.

Nuzzi [17] says that glycosuria is more or less constant after head injuries. The time of appearance and the quantity of glucose varies greatly. His results are generally negative. In 115 observations on 39 patients he found glycosuria only three times.

Oppenheim and Eisenlohr [18] have observed the transitory form of glycosuria in a few cases.

Buch [19] reports twenty cases with literature, in which injuries occurred to parts of the head, the glycosuria following, being of the transitory form.

Lancereaux [20] says that glycosuria following traumatism is much less serious than the other varieties. It is temporary, it may disappear in a few days, and it never continues longer than a few months.

This concludes a short review of the literature of transitory glycosuria. It consists merely of mere mention of the existence of such a condition by some writers, and reports of a limited number of cases by others. There seems to have been no attempt made to investigate any considerable number of cases with head injuries, or to trace any connection between the glycosuria and the nature of the head injury. Redard attempted to find a connection between the appearance of pus in the wound of the head and glycosuria, but that any connection between the two existed was denied by De Pietro.

We have tabulated the results of the observations on 212 cases, and have arranged them in classes according to the nature of the head injury, without regard to lesions in other parts of the body; yet whenever there have been such lesions, they have been noted both in the tables and in the description of individual cases. The tables will be found in the paper as published in the City Hospital Report. The description of the individual cases follows:

CLASS 1, includes the simple scalp wounds and other minor head injuries.

CLASS 2, scalp wounds with bone exposed.

CLASS 3, cases of concussion, meaning those followed by loss of consciousness without fracture.

CLASS 4, includes fractures of the vault of the skull.

CLASS 5, fractures of the base of the skull.

### CLASS I.

CASE 24, CLASS 1. J. D., male, age forty, laborer. Service of Dr. Cushing. Nine days before entrance was struck on the head by an iron bar, sustaining a scalp wound three or four inches long. There were ten stitches taken in the wound at that time. Three days later erysipelas of the face and scalp developed. On entrance, beside the erysipelas, a discharging sinus was found at one point in the unhealed scalp wound. The patient was discharged on the fifteenth day, the erysipelatous blush having entirely disappeared, and only a very slight discharge from the wound.

*Urine.* — The urine was examined the day following entrance, but no sugar found. Two days later, (twelfth day after injury and ninth day after the appearance of erysipelas) the urine had a specific gravity of 1.020, and contained a slight trace of sugar, it being, however, too slight to quantitate. This trace of sugar continued for two days, then disappeared, and was not found again during his stay in the hospital.

There is obviously some doubt as to the cause of the sugar in this case. It appeared for the first time twelve days after the injury, and at a time when the erysipelas was rapidly improving. It would appear, however, as if the erysipelas had an exciting factor in the production of the sugar, yet it may have been due directly to the injury, even though the sugar did not appear for twelve days. Brouardel and Richardiere report four cases of injury to the head where the sugar did not appear until from one to two weeks after the injury.

CASE 27, CLASS 1. W. E. T., male, age four years. Service of Dr. Post. Was run over by an express-wagon, and on entrance was found to have a hematoma over the left frontal eminence, beside a lacerated wound of left ear and contusion of left shoulder. The wound of the ear was dressed antiseptically. At no time were there any head or nervous symptoms. The patient was discharged on the twelfth day, apparently in excellent condition.

*Urine.* — The urine, obtained nine and half hours after the injury, was found to have a specific gravity of 1.025; albumin, the slightest possible trace; sugar, 2.92 per cent. Fermentation by yeast was very active. Two days later the urine had a specific gravity of 1.035; albumin, slightest possible trace; sugar, a very faint trace. A specimen obtained on the fifth day after the injury showed a complete disappearance of the sugar. Repeated examinations of the urine while the patient remained in the hospital, failed to show any trace of sugar after the fifth day.

CASE 52, CLASS 1. J. O'B., male, age forty-seven, janitor. Service of Dr. Watson. The patient, while intoxicated, fell from a roof, a distance of ten feet, sustaining a scalp wound one and a half inches long, running transversely between the left parietal eminence and the median line. Several contusions about the left shoulder and right side. The pupils were equal and reacted to light. Mental state dubious, because of the alcoholic condition. Scalp wound sutured and dressed antiseptically. The following day the mental condition was good, and he was feeling very well except for lameness resulting from the fall. The patient was discharged well on the seventh day.

*Urine.* — The urine which was passed about eighteen hours after the injury had a trace of sugar, this being the only time that it was found. Three months after the injury a specimen of urine was obtained from the patient and found to contain no sugar.

CASE 73, Class 1. P. F., age twenty, female. Service of Dr. Gavin. Was confined in November. 1894. While suffering from puerperal mania, which developed fifteen days later, she jumped from a third-story window (thirty feet) striking on the ground. She was brought to the hospital suffering from an incised wound of left super-orbital ridge, three-quarters of an inch in length, bone not exposed. Also on the inner aspect of the left breast a small wound one-half an inch long and a quarter of an inch deep. Milk expressed from both breasts. The wounds were dressed antiseptically. For the first few days the breasts were relieved of their secretion by means of a breast-pump. The patient remained delirious during her stay in the

hospital. The wounds entirely healed, so that she was discharged on the sixth day.

*Urine.* — On the day after entrance a trace of sugar was found in the urine. The amount of sugar increased considerably in the next few days, for on the sixth day after entrance nearly one per cent. was found. There was not only a reduction of copper in Fehling's solution, but also a noticeable fermentation with yeast.

CASE 74, CLASS 1. E. M. S., age thirty-eight, female. Service of Dr. Burrell. Was confined in March, 1894. Nine months later was struck on the head and face in a quarrel with her husband. On examination she was found to have a large hematoma over the left parietal and frontal eminences and extending down onto the left cheek. There was marked swelling of nose and about the left eye, sufficient to close it. A small contused wound behind left ear, also on left cheek. The arms, legs and lower part of trunk were covered with small excoriations and bruises. There was also a fracture of the second phalanx of the right ring-finger. There was no paralysis or head symptoms. As the patient had been nursing her child up to the time of entrance to the hospital, the breasts required massage during the first twenty-four hours only, there being no trouble afterward.

*Urine.* — The first specimen of urine, obtained about twelve hours after entrance, was found to have a specific gravity of 1.018, a large trace of albumin, and to contain a slight trace of sugar. After forty-eight hours the sugar had increased to a distinct trace, yet too slight to be quantitated, the urine having a specific gravity of 1.026, and containing a very slight trace of albumin. There was a definite fermentative reaction obtained by yeast. An examination of the urine made ten days after entrance showed a specific gravity of 1.023, a very slight trace of albumin and a complete disappearance of the sugar. Repeated examination, made later, failed to show the presence of sugar.

(Patient still in hospital, at the time of writing.)

In the consideration of these last two cases, we are confronted by the question, Have we to do with a lactosuria or a temporary glycosuria as a result of injury to the head and a general "shaking up"? In both cases, each was nursing a young child up to the time of injury, and according to Ord,[21] lactose appears in the blood during lactation. Blot,[22] de Sinetz,[23] Hoffmeister,[24] Kaltenbach,[25] Halliburton[26] and Hammersten,[27] say that lactose appears in the urine, as such, although Ord,[21] Moritz[28] and Voit[29] seem to have found it appearing in the urine as glucose, yet Moritz[30] later asserts the probability of a lactosuria.

In distinguishing between glucose and lactose we find that, according to Hammerstein, the latter is not fermentable with pure yeast, yet both reduce copper. If then, this be true, although the non-fermentation of lactose is disputed by Halliburton, we may have to do, in these two cases, with a glycosuria, either alone or coincident with a lactosuria.

### CLASS II.

CASE 87, CLASS 2. D. C., age twenty-nine, male. Service of Dr. Bolles. Fell twenty-five feet from a staging striking on right side of face, causing a wound three inches long, beneath which the malar bone, zygoma and the coronoid process of jaw were fractured. In addition, there was a small wound one inch long, with bone exposed in middle of forehead and a Colles fracture of left wrist. Patient was unconscious, remaining so several hours, following which was delirium lasting most of the time till death; pupils reacting, but unequal; no paralysis. In dressing, a number of small pieces of bone from the face were removed. The wounds healed almost throughout by primary union. On the sixth day a right facial paralysis was first noticed, with mouth drawn to the left, probably due to injury of the facial nerves. At night on the same day, patient had difficulty in swallowing, and on the next day developed a pronounced tetanus in the facial muscles, with spasm of the tongue. Following this he failed rapidly and died on the eighth day.

*Autopsy.* — Brain normal, with dura adherent to the bone at the base. No fracture about the head except in the bones of the face. Right kidney was ruptured, with hemorrhage into the suprarenal capsule. There was also hemorrhage into the capsule of the liver, on right lobe under surface. There was an acute splenic tumor, congestion of lungs, and a few small patches of sclerosis in aorta and coronary arteries.

*Urine.* — An examination of the urine passed about twelve hours after the accident, disclosed the presence of 1.04 per cent. of sugar, with a specific gravity of 1.020 and a large trace of albumin. Repeated daily examinations of the urine gave a smaller percentage of sugar each day up to the sixth, when it had entirely disappeared. A positive test by fermentation.

As on the sixth day the first symptoms of tetanus appeared, it is perfectly evident that the glycosuria could not have been caused by this complication. To which of the other lesions it was due it is impossible to determine.

CASE 112, CLASS 2. J. M., male, age fifty. Service of Dr. Monks. Five days before, fell in getting off a moving electric-car, striking head on a post. At time of entrance, on patient's head were two irregular, suppurating cavities in scalp, the first over vertex about one by one and a half inches; the second over left parietal eminence, about one-half by two inches, appearing as if the flesh had been torn away, leaving the bone uninjured, exposed beneath. In six days erysipelas of the face and scalp developed, following a chill, headache and a rise in temperature the day before. Patient did well until the twenty-second day, when without apparent cause he suddenly became unconscious and died.

*Autopsy.* — There was no evidence of fracture of the skull; great excess of serous fluid in the subarachnoid spaces and in the ventricles. The veins of the brain were distended with dark fluid blood. The puncta cruata were prominent; no meningitis. Brain substance firm, and on section no evidences of hemorrhage or pathological changes. Other organs of the body normal, except for a moderate edema and congestion of the lungs.

*Urine.* — The urine of this patient, from the time of entrance till his death, was examined frequently, and at all times was found to be above 1.030 in specific gravity and to contain a large amount of sugar, the greatest amount at any one time being 5.55 per cent. varying between that and four per cent. There was active fermentation at each examination.

As the erysipelas developed on the sixth day, it may at once be excluded in considering the cause of the glycosuria. It is possible, in view of the early presence of a large quantity of sugar in the urine, continuing

undiminished several weeks till death, that we have to do in this case with a diabetes existing prior to the injury. The previous history of the patient with respect to thirst, frequent micturition, etc., is, however, entirely negative. Charcot says that cases of persistent glycosuria following blows on the occiput are more common than, and are apt to be mistaken for, cases of true diabetes. It seems probable, then, that this may be a case of that kind.

CASE 119, CLASS 2. M. R., male, age fifty-three. Service of Dr. Cheever. Knocked down by a team in the street, causing over occiput an irregular lacerated wound three inches long, bone exposed. In addition, there was a fracture of one rib. Patient was very restless, with a mild delirium at times for several days. The wound united well by primary union, and on the twelfth day he was removed from the hospital.

*Urine.* — The first urine examined was passed ten hours after the injury. At that time the specific gravity was 1.033, with a trace of albumin and 3.84 per cent. of sugar. Two days later there was four per cent. of sugar present, with a specific gravity of 1.043. From this time on until the patient's discharge the sugar gradually decreased to 1.91 per cent. at the last examination on the twelfth day. There was a pronounced yeast fermentation at all times.

CASE 122, CLASS 2. G. A., male, age eleven. Service of Dr. Burrell. While crossing the railroad track was struck by a locomotive, causing a large hematoma over occiput, with a scalp wound two and a half inches long, bone exposed beneath. In addition, there was a compound fracture of the right leg and a bad crush of right arm necessitating amputation above the elbow. The boy suffered from profound shock, remaining unconscious for about twenty-four hours, followed by delirium lasting four to five days. He is now making an excellent recovery, still remaining in the hospital.

*Urine.* — The first urine was passed twelve hours after the injury. It contained a trace of albumin, a very small percentage of sugar, and had a specific gravity of 1.028. On the third day the trace of sugar had disappeared, and frequent examinations up to the present time have not detected its presence again.

### CLASS III.

CASE 147, CLASS 3. J. S., male, age twelve. Service of Dr. Gavin. Was thrown from a carriage in a "runaway" accident, striking on his head. He was picked up unconscious, remaining in this condition for about two hours. On arrival at the hospital, there was found a hematoma over the right parietal and occipital regions. No depression or fracture of the bones could be made out. Pupils were equal and reacted to light. He complained of slight pain in the head, this, however, being the only subjective symptom. The patient was discharged relieved on the eleventh day, in a very good general condition.

*Urine.* — The urine was unfortunately not examined for thirty-six hours, at which time 1.2 per cent. of sugar was found. On the fourth day after injury it was found that the sugar in the urine had diminished to 0.3 per cent.; on the sixth day only a faint trace; and a complete disappearance on and after the ninth day. At each examination of the urine the fermentation test with yeast was tried with a satisfactory reaction as long as the sugar remained. At no time were we able to get a reaction for acetone or diacetic acid. On the thirty-seventh day after the injury another specimen of urine was obtained from the patient, and was found to be free from sugar.

### CLASS IV.

CASE 169, CLASS 4. W. M., male, age forty. Service of Dr. Gavin. Shot himself in the head during a fit of melancholia. The patient was brought to the hospital in a semi-conscious condition, having a perforating wound one and one-half inches above and same distance back of the right ear. The pupils were equal and reacted to light; no paralysis. The wound was probed by Dr. Gavin, who found an opening having jagged edges through the skull. An effort to find the bullet was unsuccessful. Two days later the patient regained consciousness, and at this time slight paralysis on the left side, with deviation of the eyes to the right was noticed. On the fifth day became delirious and noisy, this continuing for four days. There was retention of urine on the tenth day, and at this time there was a sero-purulent discharge from the right ear. The patient's mental condition had improved somewhat, and the general condition remained pretty good to the twenty-eighth day, when he became unconscious; the retention of urine had given way to incontinence, still paralysis of left side. Death occurred on the twenty-ninth day.

*Autopsy.* — A well-marked cicatrix situated two inches behind and one and one-half inches above external angular process. On removing the scalp a circular opening through skull was found. A fracture one-half inch behind coronal suture, penetrating the great wing of the sphenoid bone. Bullet was found just inside the opening in the skull and over the third frontal convolution just anterior to the ascending limb of Sylvius. This frontal convolution was softened and destroyed. There was no abscess cavity at this point.

*Urine.* — An examination of the urine, made seventeen hours after the injury, had a specific gravity of 1.025; albumin, slightest possible trace; sugar, a trace, too slight to be quantitated. Repeated examinations were made during the life of the patient, but no sugar was found at any time after the first examination.

CASE 191, CLASS 4. G. M. R., male, age fourteen. Service of Dr. Watson. Was struck on the head by the shaft of a planing-machine, sustaining a lacerated wound extending from the bridge of nose to supraorbital ridge of frontal, destroying left eye, and involving the nasal, frontal, malar, and possibly superior maxillary bones in compound comminuted fracture. On entrance to the hospital was conscious, pulse rapid but of low tension. The patient was operated upon by Dr Monks, who enucleated all remains of the eye, removed fragments of bone, thoroughly cleansed and dressed the wound antiseptically. The next day, while dressing the wound, a rather profuse discharge of sero-sanguinous matter was observed. There followed a good recovery, and he was discharged on the nineteenth day.

*Urine.* — An examination of the urine, twenty-four hours after the injury, showed specific gravity of 1.035, slightest possible trace of albumin, 0.85 per cent. of sugar. The fermentation test was active. During the patient's stay in the hospital, unfortunately the urine was not examined again; but five months after the injury the patient returned for observation, and

the urine was found to have a specific gravity of 1.020, slight trace of albumin, and contained no sugar.

Case 180, Class 4. M. K., female, age fifty-two. Service of Dr. Bolles. In an encounter with a burglar was struck twice on the head with an unknown implement. She remained in an unconscious condition about four and a half hours. On entrance, the patient was found to be a fleshy woman with a scalp wound about three inches in length over the right frontal eminence, and a crack in the bone running forward. No depression of bone. The wound was treated antiseptically. No pre-existing history or symptoms of diabetes in patient or in ancestors. An uninterrupted recovery followed, without any notable subjective symptoms. The patient was discharged on the nineteenth day.

*Urine.* — Eighteen hours after entrance, specific gravity 1.040; albumin, very slight trace; sugar present (not quantitated). The amount of urine passed in the first twenty-four hours was 1,080 c. c.

Third day, amount, 960 c. c.; specific gravity 1.037; albumin, very slight trace; sugar, 2.5 per cent. Marked fermentative reaction.

Fourth day, amount, 1,260 c. c.; specific gravity 1.024; albumin as before; sugar, 1.19 per cent. Marked fermentative reaction.

Seventh day, amount 1,500 c. c.; specific gravity 1.016; albumin as before; sugar, 0.35 per cent. Very slight fermentation.

Ninth day, amount, 1,800 c. c.; specific gravity 1.016; albumin as before; sugar present, but too slight to quantitate. No fermentative reaction.

Eleventh day, amount, 1,380 c. c.; specific gravity 1.028; albumin, a slight trace; sugar, a trace, too slight to quantitate.

Twelfth day, amount, 1,830 c. c.; specific gravity 1.030; albumin, a very slight trace; sugar, 3.84 per cent. Fermentation very active.

Thirteenth day, amount, 1,260 c. c.; specific gravity 1.042; albumin as before; sugar, 4.16 per cent. Fermentation very active.

Fifteenth day, amount, 650 c. c.; specific gravity 1.042; albumin as before; sugar, 5.43 per cent. Fermentation very active.

Sixteenth day, amount, accidentally lost; specific gravity 1.036; albumin as before; sugar, 2.38 per cent. Fermentation active.

Nineteenth day, amount, 1,350 c. c.; specific gravity 1.033; albumin, very slight trace; sugar, 1.29 per cent. Fermentation active. Discharged on this day.

Acetone and diacetic acid were not obtained at any time, although tested for at each examination of the urine.

There are some points in this case which would tend to show a pre-existing permanent diabetes, namely, a corpulent individual, the continued presence and invariable large percentage of sugar. On the other hand, we could get no history of diabetes (pruritis, excessive thirst, a noticeable increase in the daily amount of urine, etc.). The daily amount of urine while in the hospital, was generally below 1,500 c. c. (although this might well be in a case of permanent diabetes).

Case 181, Class 4. F. R., male, age nineteen. Service of Dr. Bolles. During a quarrel he was struck on the head with an iron bar about an inch in diameter. His mind was perfectly clear after the accident. On entering the hospital, there was found a scalp wound about three inches in length over the right temporal bone, with an exposure and depression of bone. The depression extended over an area of about half an inch and about one-eighth of an inch in depth. There were no subjective symptoms except for rather severe headache. The temporal bone was trephined, and several small pieces of bone removed. No subjective symptoms. A good recovery followed, and he was discharged on the nineteenth day.

*Urine.* — At the first examination, made three days after injury, there was a specific gravity of 1.028, and no sugar or albumin present. On the sixth day the urine had a specific gravity of 1.030 and a very slight trace of albumin and sugar. There was a complete disappearance of the sugar two days later, and no recurrence during his stay at the hospital.

Case 183, Class 4. J. R., male, age twenty-four. Service of Dr. Bolles. Was struck on the head by a large piece of coal which fell from a staging above. He was knocked down, and was insensible for only a few moments. He then walked home without assistance. Three hours and a half later he became unconscious, and was brought to the hospital in this condition. Examination showed a well-developed man. Pulse rapid (160); respiration 40, and simulating the Cheyne-Stokes character. Both pupils dilated; left more than right, and reacting sluggishly to light. A small scalp wound at the coronal suture, in the median line. All extremities were rigid, relaxing momentarily at times. The operation of trephining was performed by Dr. Bolles, who removed a button at the point of scalp wound and another one over the course of the left middle meningeal artery, but nothing was found in either place to account for the symptoms. Death occurred fifteen hours after the injury. There was no autopsy.

*Urine.* — About eight hours after the injury, the urine was drawn by catheter, and found to have a specific gravity of 1.033; albumin, a very slight trace; sugar, a faint trace (too slight to quantitate). Only one examination was made before death.

### Class V.

Case 212, Class 5. C. A. L., age forty-two, male. Service of Dr. Watson. Was thrown out of carriage one-half hour before entrance. When seen first, there was slight stupor, from which he could be aroused sufficiently to give name and age, but relapsed immediately on being allowed to remain undisturbed, and at the end of another hour was totally unconscious, soon becoming delirious. Over right parietal region was a large swelling beneath which nothing could be felt; hemorrhage from left ear; no paralysis, knee-jerks slightly increased, examination otherwise negative. About three hours after the accident an incision was made over swelling, revealing a crack in the bone, running downwards and forwards towards the base. Bone was trephined, finding the dura lacerated with considerable hemorrhage, necessitating tying the posterior branch of the middle meningeal artery. Patient did not recover consciousness after the operation. He continued noisy and delirious, dying forty-five hours after the accident.

*Urine.* — It was possible to obtain only one specimen of urine from the patient. A small quantity was drawn by catheter sixteen hours after the injury. At that time it contained a very slight trace of albumin, with a specific gravity of 1.030; and a trace of sugar was found by Fehling's and the fermentation tests.

CASE 201, CLASS 5. J. S., age thirty-seven, male. Service of Dr. Bolles. Twenty-four hours before entrance fell into the hold of a vessel, striking on head. At entrance unconscious, very restless and delirious; no paralysis. Over occiput, a scalp wound three inches long, bone exposed beneath, in which a fracture was found extending into base beyond limits of wound. No depression or fissure. There was a bloody serous discharge from right ear, also a slight exophthalmos of right eye. Patient continued delirious, and died thirty-four hours after the injury. No autopsy.

*Urine.* — Catheter specimen was obtained twenty hours after fall. Specific gravity was 1.027, containing a trace of albumin, and sugar to 1.25 per cent. This was the only examination made.

CASE 208, CLASS 5. G. L., age twenty three, male. Service of Dr. Bradford. Shortly before entrance fell twenty feet, striking on frozen ground. No external signs of violence; paralysis of right arm and leg. Unconscious, delirious, and very restless, lasting for about six days without other special subjective symptoms. Patient then made gradual improvement mentally and in the use of right arm and leg; and on the twenty-ninth day, being up and walking about, was discharged.

*Urine.* — On the third day after the injury, the urine was found to contain a very small amount of sugar with a slight trace of albumin, and a specific gravity of 1.030. This was the only time that sugar was found present.

CASE 193, CLASS 5. C. H. C., age fifty-four, male. Service of Dr. Monks. On the morning of entrance patient was struck on the head by a piece of falling machinery; was brought to the hospital unconscious, cyanotic; no paralysis; respiration slow and stertorous; pupils fixed, and there was slight external strabismus of both eyes. Over right parietal and temporal regions was a large hematoma, beneath which nothing could be distinguished. There was no hemorrhage from ears, nose or mouth. An immediate operation was performed; on removing the flap over an area two inches in diameter, the bone was found comminuted and depressed, with line of fracture extending into nose. Beneath, the dura was badly lacerated. Between the bone and dura was a large clot from the middle meningeal, which was ligated. Fragments of bone and the clot were removed, and the wound closed and drained. Patient failed rapidly, dying nine hours after the injury. No autopsy.

*Urine.* — The only specimen of urine obtained was drawn by catheter about six hours after the accident, immediately before operation. It had a specific gravity of 1.022, the slightest possible trace of albumin, and 2.17 per cent. of sugar.

CASE 196, CLASS 5. T. O'C., age twenty-seven, male. Service of Dr. Monks. Twenty hours before entrance to hospital was assaulted in an unknown manner. Patient was unconscious, very restless and delirious, with no marks of injury about head. There was evidence of old hemorrhage from left ear, but otherwise physical examination was negative. Death occurred about thirty hours after injury.

*Autopsy.* — Over left occipito-parietal region there was considerable infiltration of the scalp over an area four inches in diameter. Skull was fractured, beginning at about one inch to the left of the junction of the occipital and two parietal bones and extending to the left, downwards and forwards, across parietal and temporal bones, through the petrous, and stopping near the middle of squamous portion. There was no fissure or depression. Surface of brain vessels markedly injected with little free blood within arachnoid spaces. At the base pia moist and opaque, covered with a thick exudation of pus and serum. To a less degree, some exudation found along sulci from base to vertex. Base of frontal lobes bruised over an area one inch in diameter and one-quarter inch deep, also slight bruising at tip of left temporal lobe. Substance of brain moist and soft. Kidneys slightly enlarged, injected and granular. Organs otherwise normal.

*Anatomical Diagnosis.* — Fracture base of skull, contusion of brain and purulent meningitis.

*Urine.* — A catheter specimen was obtained immediately after entrance, twenty hours after the injury. The specific gravity was 1.030; it had a large trace of albumin, and sugar was present to less than one per cent., too small to determine quantitatively.

RESULTS.

Total number of cases examined 212; cases of glycosuria 20, or 9.43 per cent.
Class I. Number of cases 84; glycosuria 5, or 5.95 per cent.
Class II. Number of cases 43; glycosuria 4, or 9.3 per cent.
Class III. Number of cases 40; glycosuria 1, or 2.5 per cent.
Class IV. Number of cases 24; glycosuria 5, or 20.8 per cent.
Class V. Number of cases 21; glycosuria 5, or 23.8 per cent.

These figures show the results obtained in percentages of cases having sugar, taken both collectively and as they have been arranged in classes.

Assuming that of all the twenty cases which had glycosuria, none were diabetic before the injury, there is then a percentage of 9.43 in general for all classes of head injuries. This is fully as high as could be expected, considering the large proportion of the whole number of cases (167 out of 212) in Classes 1, 2 and 3. These would generally be considered as minor accidents.

It does not seem unfair to argue upon the assumption that in all the patients the glycosuria occurred as the result of the trauma and that they were not diabetic before. This seems especially reasonable when the fact is taken into consideration that of 1,563 patients, the whole number of accident cases admitted to the hospital for the same thirteen months during which the head cases have been studied, no case apart from those with head injuries was found to have glycosuria. As it is, there are only three cases out of the whole number — J. M., Case 112, Class 2; M. R., Case 119, Class 2; and M. K., Case 180, Class 4 — in which there can be any question. From a careful study of these after the accidents and taking into consideration their previous histories, it seems very probable that a permanent glycosuria was consequent upon the head injury, rather than that a diabetes existed previously.

With the exception of Class 3, which shows a surprisingly small percentage of sugar cases, there is considerable increase in the number with each higher class. This is, as would naturally be expected, very noticeable in the increase of the last two over the preceding one. The difference between these two considered together, apart from the other classes, is not sufficient to be of any marked significance. It has been of considerable interest, however, to consider them separately in this paper.

In general, then, it can be said that all classes of head injuries taken together, about 10 per cent. mani-

fest glycosuria as the result of traumatism, while the severe cases, fractures both of the vertex and base, from 20 per cent. to 25 per cent. have glycosuria.

Sugar may be present in the urine following any head injuries, however slight. It is present much more frequently following severe injuries. From a diagnostic standpoint it is difficult to see how the presence of a glycosuria can render any assistance.

### INJURIES TO THE SPINE AND BACK.

During the period over which our observations have extended, a limited number of cases of injury to the spine and back have been followed, but intentionally left out of the tables. According to Vogel,[31] Warren,[32] Ebstein[33] and others, transitory glycosuria, but more often permanent diabetes, may follow such injuries, and is considered by most of the above observers to be due to concussion of the spine. Of such cases seen in the hospital during the thirteen months, none presented sugar in the urine, although carefully sought for.

### EXAMINATION OF THE URINE.

The greatest care has been used in the examination of the urine of all cases, and in each especial reference made to the test for sugar.

Fehling's solution was used for both the qualitative and quantitative tests. The routine qualitative tests were made as follows: Taking about three to five cubic centimetres of a freshly prepared Fehling's solution, boiling, and then adding five to fifteen drops of the urine, from which the albumin (if more than a very slight trace) had been previously removed. The solution was *not* boiled after the addition of the urine, but immediately set aside and carefully watched for a reduction. If no reduction of the copper appeared within an hour or two, it was set aside for twenty-four hours and again examined for a deposit of the suboxide of copper. The amounts of sugar which have been designated as a trace and a very slight trace, appeared only after twenty-four hours, and in every instance a distinct precipitate of the suboxide of copper was found. No effort to quantitate slight traces of sugar was undertaken, for such would have been useless. In every case, however, where the amount of sugar was sufficient, a quantitative test was made.

In most of the sugar cases the fermentation test was made, not as a means of quantitation, but to detect the presence of glucose; and in all cases in which it was used it proved confirmatory.

Albumin, together with casts and abnormal blood, was found in every case containing sugar, probably secondary, in most instances, to the renal irritation produced by the sugar, even though it had been eliminated only a short time.

Since acetone and diacetic acid are a frequent accompaniment of sugar in the urine, especially in the permanent forms of diabetes, it is of interest to note that they were not found in any of the sugar cases here recorded.

Ebstein[33] reports a case in whose urine acetone and diacetic acid were found, not until eight years after an injury, resulting in a permanent diabetes. As far as found, there is no literature bearing on this subject in those cases where sugar follows a head injury immediately or in a few days. It would appear, then — in cases J. M., Case 112, Class 2; M. R., Case 119, Class 2; and M. K., Case 180, Class 4, where there is some question as to a permanent pre-existing diabetes — that a point in favor of a permanent glycosuria following the injury is the absence of acetone and diacetic acid.

### AGE AND SEX.

The ages of the cases, where sugar was found, varies between four and a half and fifty-four years, and are quite evenly distributed between these limits. It is therefore concluded from such cases as here observed, that the age has no practical significance.

As regards the sex, very little of value can be drawn. Although 85 per cent. of the cases having sugar were males, yet it appears to be relative, much more, to the liability to injury (as among manual laborers) than to the sex alone.

### DIET.

From the fact that the diet is oftentimes an important factor in the appearance and disappearance of sugar in the urine, it might be well to state, in a few words, that it had little or no attention in those cases where sugar was found. Following the injury, the patient had milk in sufficient quantities, until the general condition warranted a more generous and substantial diet of meat, vegetables, etc. It is therefore obvious that this question has practically no weight in the sugar cases considered.

### CONCLUSIONS.

(1) That, after injury, sugar may appear in the urine as early as six hours, and disappear within twenty-four, the average time for its appearance, however, being from eight to twelve hours; for the disappearance of the same, from the fifth to the ninth day.

(2) That a small proportion of the cases may exhibit a permanent glycosuria from the date of injury to the head.

(3) That acetone and diacetic acid are rarely if ever found in such cases, excepting where the condition becomes a permanent glycosuria, and even then probably only after a number of months or years.

(4) That of the twenty sugar cases here recorded, eleven (55 per cent.) had received an injury to the right side of the head; five (25 per cent.) to the left side; three (15 per cent.) to the occiput, and two (10 per cent.) where there was no external evidences of violence.

(5) That it is impossible in the present state of the knowledge of the pathology of diabetes and glycosuria to draw any inferences from the autopsies which have been obtained. It was thought best, however, to report them in full.

(6) That there is little to be said in regard to the mortality. Of the twenty cases, eight died — six being the direct result of severe injuries, one from intercurrent disease, and the third probably from alcoholism. In the 212 cases, 16 were fatal, 50 per cent. of these having glycosuria.

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## THE TREATMENT OF CHOREA, WITH ESPECIAL REFERENCE TO THE USE OF QUININE.[1]

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IN January, 1893, as the result of a conversation with Dr. H. C. Wood of Philadelphia, I was led to try the effects of quinine in the treatment of chorea, during my service at the City Hospital. Quinine was given in eleven cases, but three of these failed to report regularly, so that they will not be considered.

In addition to the quinine the ordinary hygienic measures and regimen such as I ordinarily recommend in the treatment of chorea were employed. The children were ordered to be taken out of school, cold sponge baths were given daily, the diet was regulated and forced feeding was prescribed, the amount of out-of-door exercise was strictly limited, and as much rest as practicable was enjoined. No other medicinal treatment was given, not even cod liver oil or any malt preparations. Quinine was given in doses of from six to eighteen grains a day, the doses being rather smaller than those given by Dr. Wood, as at that time I did not know that he advised pushing quinine until cinchonism was obtained.

The results in the eight cases were as follows, details as to the clinical history being omitted:

CASE I. R. H., age twenty, single, a cigar-maker, came to the hospital on the 24th of February, 1893. She was a Jewess. Her mother had been under treatment at the hospital for rheumatism, and her younger sister had been to the out-patient department the previous year, suffering from a third attack of chorea. For three weeks she had had choreic movements of the left arm and face; the movements being marked. There were no heart murmurs and she had never had rheumatism. She was given five grains of quinine three times a day.

On the 27th she reported that she had had severe headache, and had been unable to sleep. She had also been extremely emotional and hysterical, and the movements were more marked. The quinine was given only once a day.

On the 1st of March she was much better. She slept well and had no headache. The choreic movements could hardly be detected. She was given two and a half grains of quinine three times a day.

On the 3d no chorea could be detected, and she was much better. She was discharged with orders to report should there be any return of the trouble; but she remained well.

CASE II. Patrick M., ten years old, a school-boy of Irish parentage, came to the hospital on the 5th of May, 1893. He had had acute articular rheumatism all winter, and for four days he had had severe and general choreic movements. There was no cardiac trouble. He was given two grains of quinine four times a day.

On the 12th he was much better. The quinine was increased to four grains.

On the 22d the chorea had ceased, and all treatment was discontinued.

On the 26th he was discharged, well.

CASE III. Mary S., age thirteen, a school-girl of Irish parentage, came to the hospital on the 20th of March, 1893. She had had general chorea, worse on the right side, for two weeks, the movements being well marked. She had never had rheumatism and had no cardiac complications. She was given two grains of quinine three times a day.

On the 24th the movements were diminished. The quinine was increased to four grains.

She improved gradually, but on the 24th of April there was still some twitching. The quinine was increased to six grains.

She gained slowly and was discharged well on the 31st of May.

CASE IV. Addie L., age nineteen, single, a Jewess, came to the hospital on the 31st of March, 1893. There was a history of rheumatism in the family. She had had chorea and neurasthenia previously. For two weeks she had had general choreic movements, worse on the right side. She had never had rheumatism, and the heart was not affected. She was given two grains of quinine three times a day.

On the 3d of April she complained of more headache, but she slept better. The twitching was not changed.

On the 19th she was a trifle better, but she had been distinctly worse. The quinine was discontinued by my assistant, Dr. Burr, and she was given arsenic. She continued to improve, but discontinued treatment in May, before she was entirely well.

CASE V. Maud M., age nine, a school-girl, came to the hospital on the 17th of April, 1893. For ten days she had had marked choreic movements on the left side. She had never had rheumatism. There was some reduplication of the first sound of the heart at the apex, but no murmur. She was given two grains of quinine four times a day.

On the 21st the movements were worse and the quinine was increased to four grains.

[1] Read before the Boston Society for Medical Observation, December 3, 1894.

On the 1st of May she was still worse, the quinine was discontinued and arsenic ordered.

She improved steadily, and when last seen, on the 22d of May, just before I went off duty, she was nearly well.

Case VI. James M., age twelve, a school-boy of Irish parentage, came to the hospital on the 15th of March, 1893. He had been irritable, and unable to write at school for a month, and for a week he had had marked chorea on the left side. There was no cardiac murmur and no rheumatism. He was given two grains of quinine three times a day.

On the 17th the choreic movements were worse, but he slept a little better. The quinine was given four times a day.

On the 20th the twitching had increased. The quinine was increased to four grains three times a day.

On the 27th he had improved a trifle. The quinine was increased to six grains.

On the 31st he was much worse, and the twitching had extended to the right hand. The quinine was discontinued, and arsenic and iron given. From this time he continued to improve, and on the 28th of April was well.

Case VII. Ellen D., age thirteen, a school-girl of Irish parentage, came to the hospital on the 28th of April, 1893. She had had marked choreic movements on the left side for three days. She had never had rheumatism; the heart was somewhat tumultuous, but there were no murmurs. She was given two grains of quinine three times a day.

On the 19th of May, there being no improvement in her condition, the quinine was discontinued, and arsenic was given, under which she improved during the week she remained under observation.

Case VIII. John D., age thirteen, a school-boy, came to the hospital on the 3d of May, 1893. He had had acute articular rheumatism during the winter. For four weeks he had had choreic movements on the right side. The heart was normal. He was given two grains of quinine three times a day.

On the 5th his condition was unchanged. The quinine was increased to four grains.

On the 8th there was still no change. The quinine was increased to six grains.

On the 12th he was worse. The quinine was discontinued, and arsenic given. Under this he improved slowly during the fortnight he remained under observation.

To sum up: in one case there was complete recovery in a week after treatment was begun, and in a second in three weeks, but, although this is rather a short time, it is not very remarkable for chorea to recover in that period. The third case recovered after being under treatment ten weeks. In five cases the quinine treatment proved ineffectual and arsenic was substituted, with distinct benefit in the majority of cases. With the exception of Case I, which recovered in a week, the results are neither remarkable nor satisfactory.

During this period Dr. Wood had published [1] the results of experiments on animals and had been putting his hypothesis into practice, reporting his results [2] at a meeting of the Association of American Physicians in May, 1893.

[1] H. C. Wood: Choreic Movement, Journal of Nervous and Mental Disease, April, 1893.

[2] H. C. Wood: Note on Use of Quinine in Chorea, Transactions Association of American Physicians, viii, 101, 1893.

In studying canine chorea Dr. Wood, in common with other observers, found that the movements continued after section of the spinal cord. He therefore concludes that the seat of the morbid process in chorea is in the cord. Although in chorea the motor function of the cord is somewhat impaired, he holds that the inhibitory motor function is still more impaired; that Setschenow's centres are too weak to arrest the voluntary movement as soon as its end is attained, and that in consequence the movement goes beyond the normal limits. Atropine paralyses the inhibitory function of the cord, and quinine stimulates it, and, in the first paper cited, he showed that the choreic movements in the dog were enormously increased by atropine, and completely checked by quinine.

In the second paper he gives the application of these theories. In six cases of canine chorea he gave quinine, with the result that in every case the movements were inhibited, and that in four cases the dogs recovered — canine chorea being usually a fatal disease. In two cases of chorea in children he gave quinine in doses of nine to twenty-four grains daily for seven and a half weeks, one case recovering, and one case being greatly improved. He reported eleven other cases communicated to him by others. In nine cases (in two of which arsenic had failed) the patients recovered in from three to fifteen days, after taking nine to twenty-five grains of quinine daily. In two cases quinine failed and arsenic was substituted; one of these cases did not improve at all, the other recovered.

These results are more satisfactory than my own, but they are hardly conclusive. I believe that in a certain number of cases of chorea very good results might be obtained by removing the child from the bad hygienic surroundings in which it lives, by giving a liberal and nourishing diet, instead of the tea, candy, and bread on which so many of them feed, by enforcing as absolute rest in bed as can be attained, and by judicious hydrotherapy, without the aid of drugs. Nevertheless, we cannot regard chorea as a self-limited disease, in spite of the recent theories as to its nature to which I shall presently refer, for in only too many cases the trouble is protracted and may even became chronic. I have never yet ventured to try a purely expectant treatment, and I fully believe that in many cases the attack is much relieved and shortened by the ordinary drugs in use, notably, of course, arsenic.

The ordinary methods of treatment will in many simple cases be followed by complete or nearly complete recovery in from four to ten weeks, and therefore the results in a part of these cases treated by quinine are no better than the results in other cases. I must admit that I have not seen recovery under other forms of treatment inside of a week, so that the cases collected by Dr. Wood are of more weight in supporting his theory than his own cases or mine.

I do not believe, however, that the use of quinine in chorea can be justified on the hypothesis of its action in stimulating the inhibitory motor functions of the spinal cord. That quinine may be of benefit as a tonic is of course evident, and it may have some influence upon the toxine that produces chorea. Chorea, however, cannot be regarded as a spinal disease. The pronounced cerebral symptoms, insomnia, irritability, headache, mental failure, and the distribution of the choreic movements, which are so often found to affect one side or even one limb predominantly, would of

themselves point to the cerebral origin of the disease, even without the evidence afforded by autopsies, which have shown the most marked changes in the cerebral cortex, although the basal ganglia and the cord itself have not been exempt. Choreic movements are not uncommon as a result of structural brain disease, but they are rarely if ever seen as a symptom of diseases of the cord. In canine chorea, on the other hand, which is not proven to be the same as human chorea, the changes are chiefly in the cord. It is possible that in some cases, such as those reported to the American Neurological Association in 1890 by Weir Mitchell, the morbid process may affect chiefly the cord, but such cases are rare.

It is furthermore possible that in the future we may differentiate several affections which are now called chorea. Huntington's chorea and the electric chorea of Dubini are now fully recognized as distinct diseases, having no connection with the ordinary chorea of childhood — Sydenham's chorea. Evidence is accumulating that in most cases of Sydenham's chorea we have to do with a disease of microbic origin, and the researches of Berkeley, Dana and Pianese have done much to confirm that belief. Other cases, including some of the rather rare cases which are alleged to be due to fright or to irritation, may be of hysterical origin. In chorea of microbic origin the toxine probably exerts its chief influence upon the brain cortex, especially in its motor region.

The hypothesis on which quinine is recommended for the treatment of chorea seems to me untenable, and the therapeutic results are based thus far on too few cases to warrant us in ascribing greater virtues to this drug than to arsenic. Not having the idea at the time of publishing the results of this very imperfect trial of the drug, the results of one season's trial did not seem to me of sufficient value to lead me to try it in my private practice or in my subsequent terms of service at the hospital, and I went back to my former custom of supplementing the rest and regimen with full doses of arsenic, associated if necessary with iron or other tonics, and, in case of great motor disturbance and restlessness, with sulfonal or other sedatives.

## INTESTINAL INCISION AND DRAINAGE IN ACUTE PERITONITIS.[1]

BY S. J. MIXTER, M.D.

WHATEVER the starting-point of the process, or however simple and comparatively safe its treatment by early operation might have been, the presence of a more or less general peritonitis renders the prognosis a very unfavorable one. In spite of removal of the band, suppurating tube, or sloughing appendix, together with irrigation and drainage by tubes or gauze, the abdominal distension increases, the paralyzed bowel refuses to do its work, and the patient generally dies.

On opening the abdomen of a patient with such symptoms, we find the intestines distended with gas, and containing also a considerable amount of liquid feces. They are red and rough, and the peritoneal cavity contains a large amount of cloudy or purulent serum and perhaps flakes of fibrin.

The mere fact of the great distention makes any search for the primary seat of inflammation difficult and tedious, and often an almost complete evisceration is the only method by which we can make a satisfactory exploration.

It is impossible to handle the distended coils without using some force, and there is danger of tearing them or the mesentery, especially when returning them to the abdominal cavity.

An aspirator needle or small trocar may be used to draw off some of the gas, but there is always danger of leakage at the point of puncture. A free opening with the knife is much more satisfactory and thorough, and the openings are easily closed with the over-and-over stitch.

Given, then, great distention, I believe that it is safe to open the coils of intestine at as many points as may be necessary to thoroughly drain them. They should be drawn out of the wound, held over a basin, incised in one to four or five places, and thoroughly emptied. They should then be quickly washed off with hot water containing a little salt, sewed up and returned, and the operation completed.

It is astonishing what a large amount of foul-smelling liquid feces may be removed, two quarts being not an enormous amount.

So far we have considered only the mechanical reason for this procedure. There are also other reasons equally important. The bowel has a chance to contract and recover from its almost total muscular paralysis, and the danger of septic absorption from the fermenting feces is lessened. This latter is, I am sure, a great source of danger in these cases. Abbe, in his article on intestinal anastomosis, speaks of this absorption by the intestine as a frequent cause of death after operations for obstruction, and he recommends making an artificial anus, and closing it by a secondary suture of the gut. By means of free incision and evacuation, I have several times been able to succeed in these operations without the formation of an external opening.

When, however, the bowel seems to be thoroughly paralyzed, and there is reason to think that neither the stomach nor rectum will retain and absorb the necessary salts, stimulants or food, a temporary opening may be made in the cecum, especially if the external opening is in the right side, as in cases of appendicitis. This is best done by means of a curved tube with a button on the end, which is introduced through a small hole made in the most prominent part of the cecum, and tied in, so that leakage shall not occur around it, for the first twenty-four hours. This is packed about with gauze, and a rubber tube is carried from it out through the dressing. Through this tube we can draw off any gas or feces that may accumulate, and introduce our salts and stimulants with less trouble and much greater certainty than by the rectum.

It may be said against free incision of the bowel, that there is danger of subsequent leakage; but, after using this method in nearly twenty cases, I have never known it to occur. Many of the cases have recovered, and in nearly all that have died the bowel was examined after death and found to be tight.

Against drainage of the cecum, it must, of course, be said, that there is danger or probability of the formation of a permanent fecal fistula. I can only say that I have pursued this method in two cases, one of which recovered. In this case the opening has given little trouble, has been easily controlled by a pad, and

[1] Read before the Boston Society for Medical Observation, December 3, 1894.

now, some three months after the operation, is very small, and will, I think, close spontaneously; if it does not, the opening is in the wide part of the gut and directly under the scar, where it may be easily reached and closed.

In the second case, where the tube was tied into the cecum, the patient died in thirty-six hours after the operation, but with no distention. Dr. Cotton examined the abdominal cavity after death, through the wound, and reports as follows:

"Autopsy by wound (no cuts). Gauze removed. Parts in normal relation. Cecum projecting into wound; not strangulated; empty or nearly. Beyond the packing the bowels were barely dulled, and only here and there any vague suggestion of lymph. No flakes. Practically no fluid in abdomen. Lower hole of puncture tight. No adhesions. Upper hole imbedded in adherent bowel; both tight; both tight with considerable pressure applied through fluid contents. Appendix stump tight; no pus about it. Here and there, at juncture of mesentery and bowel, minute ecchymoses."

After the experience that I have had with this method, I feel sure that by it we can save certain patients that would otherwise die.

## THE STOMACH TEST IN MURDER TRIALS.

BY GUSTAV LIEBMANN, M.D., BOSTON.

The object of this test is to ascertain by the presence or absence of solid contents or by the intermediary stages of liquefaction of food found in the stomach how far the process of digestion had advanced, giving thus a clew as to the time at which death of the victim had taken place, provided the time of the last meal be known. In order to arrive at an exact, or at least approximately exact, conclusion, the first and imperative condition would be an uniformly established and acknowledged schedule of time, in which the different phases of digestion should be completed. If there be such a physiological law, from which there is practically no deviation, we should place full reliance upon the test; but if there be, in healthy people even, numerous exceptions or deviations, the test must of necessity be open to errors. Now I hold that this latter proposition is the true one. The food does not drop out of the stomach with the regularity of the shot that drops out of the cylinder in the new Connecticut hanging-machine. To be sure, in a good many cases it is disposed of in from four to five hours after eating, the time set down in the text-books as necessary for the completion of the digestive process. But, as a matter of fact, in almost quite as many other cases this term is exceeded by two to three hours; so that Leube, for instance, in order to determine the duration of digestion, never takes out the stomach contents before seven hours after the test-meal.

The different variations in the duration of the digestive process depend upon the following conditions:

(1) The length of time necessary to the transformation of solids into chyme in healthy individuals varies a great deal according to the digestibility of the different foods.

(2) The length of time necessary to expel the ingesta from the stomach into the duodenum in the healthy individual varies according to the quantities of food taken. Not only does it take a longer time for larger quantities to be impelled on, but the motor activity of the stomach walls is diminished by the greater distention produced by the larger amount of food. Thus, pieces of meat are frequently found a day or longer after eating.

(3) The shorter or longer stay of food depends on the amount of acidity, which varies in different stomachs even within the border-lines of health.

(4) Much variation, even in health, is caused by individuality, by presence or absence of pepsin, hydrochloric acid, psychical factors, emotions (fright, fear, grief, or the opposite, as joy or exaltation).

We see, therefore, that owing to the many physiological variations which do not permit of any reliable deductions even in the healthy, the forensic value of this test must be considerably impaired. To be sure, if we had a perfectly safe and reliable standard of time, at the end of which digestion is completed and during the different phases of which certain changes of a physical and chemical nature must have been wrought with the accuracy of a clock, then indeed the test would be a reliable one. But, as we have shown, we meet with so many considerable variations (in some individuals the stomach is empty four or five hours after a test-meal; in others, only after eight or more hours), that a uniform standard time for the completion of digestion is out of the question. And, if this be so within the border-line of health, how much greater must these variations be in the dyspeptic; and yet, when the test is made, is there any attention paid to the possible diseased condition of the stomach? Not to my knowledge. And yet the chances are, that by reason of an atony of the stomach walls, of a chronic glandular gastritis or of a dilatation of the viscus the food has remained far too long in the stomach, and that the examiner will fix the occurrence of death, in accordance with the tardy progress of digestion, at an entirely too early a time.

On the other hand, there are stomachs, which in case their motive functions are unduly increased, expel their contents in an exceptionally short time — to the detriment of their possessors at that. And here the possibility arises, that the test might lead us astray in the opposite direction, in that the time of death would be fixed at a later time than warranted by the facts. The stomach is found empty; therefore the time of death is put down as having occurred at least five hours after the last meal, while in point of fact the emptying of the organ might have been complete three hours after that meal. To be sure, such cases are not the rule, but they are on record, and should be reckoned with.

From the foregoing it would therefore appear that this so-called stomach test, as applied at present to determine the time of death of the victim, is not alone inexact, but that there is even a great question whether it is approximately correct.

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Sterilization of Doctors. — It has been proposed by Gutmann that stations be erected in convenient localities in cities and large towns where physicians may go to be thoroughly disinfected immediately after they have visited a case of infectious disease, and before paying any further visits. The operation will take about fifteen minutes, and then the doctor may go about his business, proud in the consciousness of being clean and no longer a menace to the health of his fellows. — *Annals Hygiene.*

## Clinical Department.

### CALCULI OF THE KIDNEY, WITH HYDRONEPHROSIS.

BY W. H. PRESCOTT, M.D.

THE case which I wish to report is that of a woman upon whom I performed an autopsy February 15th. She was a patient at the New England Hospital for Women and Children, and I am indebted to the physicians of the hospital for the clinical history.

Mrs. C. P., age fifty-one, married, a German, was first seen by Dr. E. C. Keller in the spring of 1891, when she was suffering with an attack of severe abdominal pain, the symptoms being obscure. There was at this time a tumor on the right side, which disappeared with a great discharge of pus in the urine. She had no further trouble until her present illness.

She was admitted to the hospital January 31, 1893. On entrance, her appetite and digestion were poor; bowels irregular; insomnia; temperature 99°; pulse 112, weak and compressible; somewhat emaciated and cachectic; tongue red on tip and edges, dark pasty coating on dorsum. The amount of urine in twenty-four hours was 22 ounces, specific gravity 1.010, color pale, opaque, albumin in considerable quantity, pus corpuscles abundant.

February 1st. Physical examination showed a tumor in the right lumbar region, probably of the kidney; hemorrhoids; uterus larger than normal, with nodule in the right cul-de-sac.

February 2d. Consultation of attending surgeons. The mass outlined on the right side seemed to connect with the liver. It was sensitive, probably a pyo-nephrosis.

The patient has been losing *flesh* since November, 1892. Retains only milk. Throbbing headache and blurred vision. Occasionally abdominal pain, and tenderness on pressure, especially in the right lumbar region. Great thirst.

February 6th. Consultation with Dr. Arthur T. Cabot as to exploratory incision. The low specific gravity, absence of casts, and great thirst pointed to disease of both kidneys, and operation was contraindicated.

February 13th. Patient became worse, weaker. Retains almost nothing. Less pus in urine. Watery stools. Coffee-ground vomitus in afternoon. Died at 10.40 P. M.

The autopsy was made February 15th, thirty-six hours after death. Rigor mortis present. Lividity of dependent portions. Body well developed, but emaciated. Head and spine not opened. Spleen somewhat enlarged. On the under surface of the right lobe of the liver was an abscess extending about one and a half inches into its substance. The abscess cavity was filled with pus and shreddy masses. It was about the size of a small apple, and its walls were formed by the liver substance and the tissues between the kidney and liver, and was shut off from the general peritoneal cavity by adhesions. There was no peritonitis except in the region of the abscess. Bladder normal, and contained no calculi. Both ureters were somewhat dilated, the right one being blocked by a calculus the size of a thimble, about two inches from the pelvis of the kidney. The walls of both ureters were slightly thickened. Both kidneys were enlarged, lobular and fluctuating. The right was represented by a sac about the size of a new-born baby's head, the sac being filled with a sero-purulent fluid. Of kidney substance there was a piece about a quarter of an inch thick and one inch square in the upper part. There were four or five small calculi in this sac. The left kidney was about the same size as the right, and retained more of the kidney substance. The pelvis was much dilated, and almost entirely filled with a calculus (see cut) weighing fifty grammes and consisting of phosphates. There were numerous small calculi of the same composition, weighing altogether thirty grammes, in the numerous sacs of the kidney. All the other organs presented nothing abnormal.



The surprising thing about this case is the large amount of destruction of the kidney substance, with the short duration of the fatal illness. Of course, the first symptom was the sickness in the spring of 1891, nearly two years before death; but after a short period of illness she was apparently quite well until November, 1892, when the symptoms of her last sickness began. She was not sick enough, according to her story and that of her family, to wish a doctor until just before her entrance to the hospital, January 31st.

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EXECUTION BY ELECTRICITY. — A bill for execution of death sentences by electricity has been introduced in the West Virginia Legislature.

# Medical Progress.

## RECENT PROGRESS IN OBSTETRICS.

BY EDWARD REYNOLDS, M.D.

### VALVULAR DISEASE AND PREGNANCY.

Vinay [1] has examined the hearts of 1,700 pregnant women, with the object of determining the prognosis of pregnancy in cardiopaths. Among these 1,700 cases he found 29 who were the subjects of cardiac disease, and of these 29 there were only four in whom the pregnancy exerted any deleterious influence upon the cardiac lesion.

He concludes that pregnancy should be forbidden only to those whose heart lesions are not well compensated. He regards albuminuria, dyspnea, hemoptysis, cardiac asthenia, and a social condition which would require the patient to perform hard work during pregnancy as the chief contraindications.

### TUBAL PREGNANCY AND THE TREATMENT OF THE HEMORRHAGES INTO THE ABDOMINAL CAVITY RESULTING FROM THIS CONDITION.

Dührssen [2] suggests the advantage of preceding celiotomies for the acute anemia of ruptured tubal pregnancy by an infusion of normal salt solution. He meets the theoretical objection that this may increase the existing hemorrhage, by operating as soon as the patient's pulse improves, and by a report of successful cases.

### MECHANISM OF THE CLOSING OF THE DUCTUS ARTERIOSUS.

Strassmann [3] reports his exceedingly interesting studies of the mechanism by which the closure of the ductus arteriosus is effected. He has demonstrated from the fifth month in the human fetus a progressive development of the angle made by the anterior wall of the duct at its junction with the aorta, which at term forms a valve which is held open by the current in the duct, but must close before any regurgitant current. He has found similar conditions in fetal sheep, dogs and cats. The closure of the duct is a necessary consequence of the mechanical conditions which follow the first respiration.

During fetal life the full force of the right heart is expended in maintaining the blood current in the ductus arteriosus, and the valve remains open; but with the sudden expansion of the pulmonary arteries by the first respiration, the pressure in the duct becomes much less than that in the aorta; the valve immediately closes, and the closure is maintained by the immediate establishment of the permanent excess of pressure in the circulatory system of the left heart, which is characteristic of extra-uterine life.

The closure is prevented (1) if the first respiration is insufficient; (2) if premature respiration (that is, respiration before the air has access to the mouth) occasions sufficient pressure in the duct to overstretch it; (3) in some abnormal conditions of pressure in the large vessels; (4) in cases of incomplete development.

These conclusions are supported by post-mortem injections both through the aorta and through the duct.

[1] Arch. de Toc. et de Gyn., November, 1893.
[2] Deutsche med. Woch., 1894, Nos. 2 and 3.
[3] Archiv. für Gyn., Bd. xlv, H. 3.

### HYDRORRHEA GRAVIDARUM.

Chazan [4] discusses the cause of this affection, and concludes that it may arise from several sources. In some cases the fluid may collect between the uterine wall and the membranes as a result of edema of the wall; in other cases it may be due to edema of the membranes; thirdly, he believes that it may be a serous discharge from a persistent allantoic sac; and, finally, he quotes a case in which after a diagnosis of hydrorrhea gravidarum had been made, an examination of the membranes after the birth of a healthy child, showed that the amnion was separated from the chorion, and that there was a hole the size of a quarter-dollar through the membranes at this point. He believes that in this case there was an intermittent drainage of the liquor amnii, and considers this as probably the cause of some cases of hydrorrhea gravidarum.

### THE EFFECT OF VENTRAL FIXATION ON SUBSEQUENT PREGNANCIES.

Löhlein [5] reports two cases of pregnancy in women who had been the subjects of previous ventral fixations. The first patient, a iii-para, had a fixation in July, 1892; menstruation ceased in April, 1893, and severe vomiting appeared in March. This was most troublesome in the third month, and was much worse than in her former pregnancies. In the sixth month bands could be felt extending from the abdominal scar to the wall of the uterus near the fundus. The delivery occurred at term, and during labor the bands were easily apparent, the abdominal scar being drawn up towards the fundus with each contraction of the uterus. In the following March the uterus was found to be in anteflexion, movable, and at a normal height in the pelvis. The author thought that there was a development of the band during pregnancy, and that it involuted with the uterus during the puerperium.

In the second case the uterus had been sutured to the abdominal walls at the end of a myomectomy in November, 1892. Five months later Löhlein was called to see her on account of uncontrollable vomiting, and found her to be three months pregnant. Labor was normal, at term. The fixation band was to be detected during labor, as in the preceding case, and the uterus was subsequently found to be in normal condition.

These cases are certainly interesting, as showing not only that a ventral fixation does not necessarily interfere with the course of a subsequent pregnancy, but also that the growth of the uterus may take place without destroying the band which results from the fixation. The author's conclusion that the severe vomiting in both of these cases may have been due to some other cause will hardly appeal to most minds.

### THE PERMANENT RESULTS OF SYMPHYSEOTOMY.

Von Woerz [6] reports ten symphyseotomies. One died of sepsis; one passed out of observation in good condition; eight were followed for a sufficient length of time to warrant a report of their permanent condition. Seven of them were capable of hard work without inconvenience; but of these one had suffered for some time from incontinence of urine, which was cured

[4] Centralblatt für Gynakologie, 1894, No. 5.
[5] Deutsche med. Woch., 1894, No. 11.
[6] Centralblatt für Gynakologie, 1894, Nos. 36 and 37.

by cold baths. One could not work on her hands and knees without pain in the sacro-iliac joints.

Braum[6] reports eight symphyseotomies, with no death. Six are able to work without inconvenience; one suffers from incontinence of urine and sacro-iliac pain after lifting heavy weights; one has incontinence of urine after straining or lifting.

Among eighteen patients there was then one death, and one patient who passed from observation. Of the sixteen remaining patients, three cannot do heavy work without pain, but are otherwise well, and thirteen suffer no inconvenience.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL OBSERVATION.

J. C. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, December 3, 1894, DR. S. W. LANGMAID in the chair.

DR. P. C. KNAPP read a paper on

THE TREATMENT OF CHOREA, WITH ESPECIAL REFERENCE TO THE USE OF QUININE.

DR. J. J. PUTNAM: There are several points which are very interesting in Dr. Knapp's paper. I am rather relieved that he takes the view he does with respect to quinine and to arsenic. In regard to the relation of the canine chorea to the ordinary chorea of children, it seems to me to be quite true, as Dr. Knapp has said, that we ought not to reason from one to the other. When we think how many affections there are which resemble chorea, and how long it has taken the neurologist to distinguish between them, it seems very doubtful if we ought to consider that the chorea of the dog is the same with the chorea of Sydenham. The mere fact that it is a spinal disease, whereas the ordinary chorea is almost certainly a cerebral disease, would be enough to make one doubt whether the same remedy would be likely to be useful for both. My own experience with quinine has not been great. I used it a few times, but seeing no benefit gave it up. I have believed very strongly in the arsenical treatment pushed to large doses, though it is true that cases do not get well which one would expect to get well, and it may be true for others that if we let them alone and treated them hygienically they would do well.

As to the origin of chorea, I should like to say that although it may be of microbic origin, the fact is yet to be proved. Dr. Dana's observations cannot be regarded as carrying great weight in that respect, although anatomically they are of much value. Pianese's reasoning was based mainly on observations with dogs, although he did find in the blood of certain choreic patients some organism which he thought to be characteristic, and with which he thought he produced movements comparable with chorea, by injecting them experimentally.

Dr. Knapp says the cases which occur suddenly from fright might be hysterical cases. I do not think I should agree with him there. It seems to me that if it is true that chorea is of microbic origin, it is also possible that it should be induced by fright. We know that the opportunity for microbes to develop seems to be afforded by many agencies that do not have anything to do with the disease except in that way. I think chorea does occur from fright. I recall one case where a boy was startled while climbing a tree, and fell a considerable distance to the ground, and then and there began to have choreic movements, and when I saw him they were typical. It seems to me hardly reasonable to call such cases hysterical.

See page 204 of the Journal.

DR. PRINCE: I regret to say that I personally have had no experience in the treatment of chorea by quinine; but I have no doubt, speaking from general principles, that Dr. Knapp is correct in his conclusions. Reasoning *à priori* I should have very little faith in quinine. But in this connection I should like to say a few words on the treatment of chorea in general. I think all here will agree that there is scarcely any disease in which it is so difficult to determine the effect of treatment as it is in chorea. There are various reasons for this. In the first place, we are obliged very largely to rely upon hospital out-patients for our experiments; and here we are met by difficulties at the outset. In the first place, many hospital patients do not return to report final results. After they see they are better, they are apt not to return, and we do not learn the particular time when the patient has become well. In the second place, it is not always easy to say positively in a hospital out-patient clinic that a patient is well. We are obliged to rely on the statements of the mothers who are, as a rule, not particularly exact. I have always felt so uncertain regarding the exact period when the child was well, that I have sometimes felt discouraged in making up my mind as to the value of any particular treatment. In the third place, chorea varies much like other diseases in its course. Some cases run a very rapid course, get well in a few weeks, and others are prolonged for a very long time; so that it is very difficult, I think, to determine the effect of any treatment we wish to try. Now, there are two ways of testing a treatment. We may judge either by the apparent effect upon an individual case in shortening the disease, or we may have recourse to the statistical method. If we are to judge by the apparent effect upon individual cases as they come, it seems to me to be without doubt that arsenic, for example, does seem to have a beneficial effect. I would say that it is the rule that the parents report the next week after you have given arsenic that the child is better; and if we judge by that kind of evidence it seems to me arsenic must be regarded as beneficial. On the other hand, I am not so certain that that kind of evidence is of value. It is the general tendency of most people, as soon as they find that some one has taken the responsibility off their shoulders, to say that their children are doing well. Now it is frequently impossible in out-patient clinics for a physician in the short time he can give to a case to decide whether or not the choreic movements are increased or lessened. A child may twitch more from the excitement of the clinic or less from mental impression. The tendency of patients to say they are better is true of other diseases. I recall a rather pathetic case in my own experience. It is that of a man with paralysis agitans. Some years ago he came to the clinic for treatment, and I treated him with electricity. I had then more faith in the treatment by electricity of organic diseases of the spinal cord than now. I am afraid I had faith in it then for the same reason that I have faith in arsenic now—because it was the conventional mode of

treatment. I treated this man with electricity; and every week I asked him how he was, and every week he said he was getting better. I was quite satisfied he was not improving, but I had not the heart to tell him he was not better. It went on week after week and month after month, until finally it became necessary to tell him he was no better. He refused to believe me, and insisted that he was better. The next week he came back and shook his head sadly, and said: "Doctor, you are right; I am no better." That same thing is taking place to-day. I have another case of paralysis agitans that insists that she is better. She is not. The same thing is often observed in patients with locomotor ataxia, etc. I think it is a dangerous test, this relying upon the statement of the patient. But if that is true, the only other test we have is the statistical test. In chorea there are difficulties in obtaining statistics, and this difficulty is added to by the great variations in the course of the disease, in individual cases. Some cases get well in a very short time, some in a long time. Now, I want in that connection to refer to a very striking paper, which, although not on chorea, still is instructive as bearing on the conclusions to be drawn from the effect of treatment of any disease. I remember reading sometime ago a paper on the treatment of typhoid fever by the Brand method. The name of the author I do not at this time recall. It was a very able article. The writer, in order to find out what was the normal course of typhoid fever, and what was the natural mortality, tabulated the mortality in successive groups of cases of, I think, about 50 each, as they entered the hospital. The variations in the mortality of successive groups varied greatly, until, if I remember rightly, about 500 cases were recorded. It took about this number to obtain a standard mortality, and eliminate the element of chances. Now this is undoubtedly also true of other diseases. It takes a very large number of cases to eliminate the doctrine of chances, and I am quite certain that in trying to test our treatment of disease by the statistical method until we eliminate the effect of "chance" we cannot tell the effect of any drug. In that connection I will refer here as justifying this scepticism to a series of one hundred cases of chorea treated by sherry wine. These cases were reported in the *British Medical Journal*, in 1881, by Strange. The writer said he was in the habit of treating all his cases with sherry wine, three to six ounces a day; as a result chorea lasted from three to six weeks. Those are pretty good results. If with sherry wine a cure can be effected in three to six weeks, it seems to me that that is as good a treatment as we can have. It may be, of course, that sherry wine has some specific action in chorea, but one may fairly doubt it, as it does not seem plausible. Arsenic may have the same effect. I began sometime ago to try the expectant treatment of chorea, and gave a number of cases compound tincture gentian in a few drop doses. Unfortunately I did not carry the experiment far enough to arrive at results of value. Some of the cases so treated seemed to do about as well as the other cases; but they were too few in number to be of value. I do not wish to deny the action of arsenic. Until some comparative tests are made and the effect of the expectant treatment tried, I shall continue to use arsenic, but be sceptical regarding its specific effects.

Regarding the pathology of chorea I feel absolutely in the dark, and do not feel able to hold any opinion whatsoever; but if I were obliged to make a guess as to what it is, I think I should guess that it is some form of auto-intoxication. I think it is the usual experience that it occurs among ill-nourished children. They are weak, debilitated, anemic and in poor general condition; and I cannot help suspecting that connected with that there is some poisonous principle in the blood which has this peculiar effect on the nervous system. But this is only a guess. It may be a poisoning from a germ-toxine.

It has been my lot to see very few cases of acute chorea in private practice. Such cases as I have seen have been chronic cases. I have not known whether to attribute this to the fact that most cases of chorea are treated by the general practitioner, or whether it has been simply my lot. I should like to ask the general practitioners here whether they see in private practice many cases of chorea, or whether it is a disease which is peculiar to the poor, as some authorities say. I think it is generally regarded as a disease peculiar to hospital practice.

Dr. Harold Williams: I see a good many cases of chorea in my summer practice at Nantucket that are referred to me from different places. There the cases I have are all cases in private practice and most of them in the better classes of life. Dr. Prince speaks of anemia as being a cause of chorea. It has been my view that the chorea was more often the cause of the anemia; that the choreic child with its neurotic constitution and its difficulty in eating and swallowing, is usually poorly nourished because of the disease. I never have had any experience with treating cases with quinine, but Dr. Knapp's paper has been very interesting to me because he takes the same view apparently of chorea that I take. The cases that come to me are almost all of longer duration than Dr. Knapp has spoken of. I should say they are rather more than ten weeks and almost always have been treated by arsenic. It has been my habit to put them on hygienic treatment which I carry out somewhat further than Dr. Knapp does. I put the child to bed if I can, and have a nurse who is gentle to the child, who reads to it and amuses it. I think that is a very important thing, because it is a great question in my mind how great a part worry and fright play in the continuance of chorea; and whether it is the quiet or the change of food or what it may be, the cases almost always do very well. I have not statistics to speak from, but in seeing quite a good many of them, they almost always get well during the summer, and usually with two weeks in bed. It seems to me that rest is the most important part in the treatment of chorea.

Dr. Fay: A year ago last summer, chancing to see, in the Carney Hospital, Dr. J. J. Minot treat a case by giving forty grains of quinine a day, with apparently very rapid recovery, encouraged me to try it on several cases in the out-patient department. I remember one case treated in the latter part of July with rapidly increasing doses, until on August 8th the child was taking twelve grains three times a day with cessation of the acute movements; but the recovery did not become perfect. Cinchonism was discovered after three days of these doses, and after omitting two days the remedy was renewed at ten grains three times a day, and this was sustained for several days. After that only a very light dose could be borne without cinchonism, and the child maintained a very good recovery. In several other cases a larger dose than three or four

grains could not be borne and rest and the usual tonics were resorted to.

DR. PUTNAM: It seems to me it is hardly fair in talking about arsenic to speak of it as if it was supposed to be a specific at all. There are other remedies which affect chorea. A child was given thirty grains of chloral by Gairdner, and slept soundly all night, waking in the morning comparatively well. I suppose very large doses of quinine which produce a profound impression on the nervous system would from time to time do good. I do not see that Dr. Prince does any more than to throw doubt on the other side, and after all, impressions are worth something, though doubts are also useful. I do not think the testimony of statistics is of much value; but one can really form a judgment of more value by examining critically the course of a single case than by statistics of a great many. If you see a patient sick for a long time and give him these powerful remedies, in certain ways, and see the child recover, it is fair to believe that the remedies were of value. The fact that fifty other children got well in a longer or shorter time than that one seems to me to have comparatively little to do with the question under consideration.

There is one class of cases which I think has not been referred to enough and that is the cases which one is in doubt whether to call chorea or not, where children have slight nervous twitching when supposed to be perfectly well, and I think if one could find with them that these slight movements could be inhibited by remedies it would be a very interesting matter. I think they are of importance as regards the theory of chorea, because if there is poison in one case, there ought to be in the other. We can hardly think of a microbic poison acting so long as we see it in these slight movements.

As to rest, I should agree with Dr. Williams and Dr. Knapp. With poor children it is difficult to carry it out. I think to force them to lie in bed is to give them the aggravation and excitement you want to take away. In all cases I have them lie down a half-hour at noon in blankets before dinner, and then have cold sponging.

A single word about the kind of children that have chorea. I have seen it now and then among rich people, although I should say among the delicate ones, but I think it is striking how it occurs in certain races. Negroes are poorly nourished, prone to syphilis and tuberculosis, but do not often have chorea; whereas Hebrews and Portuguese have it with great frequency. We see all these nationalities at the Massachusetts General Hospital and I should rate their liability as follows: Portuguese first, Irish next, Hebrews next, Americans next.

DR. PRINCE: If I may explain myself, I should agree entirely with Dr. Putnam if the conditions were always such as he describes. I can only say that with me they have not been such. If I could go into a private house and watch the movements of chorea from day to day, and should find that in individual cases after giving arsenic that the child began to improve at once, and if I should see that same chain of events happening in a number of children, I should think it fair to assume that arsenic was doing good. But I feel I cannot tell when children come into the room of a hospital clinic, except in extreme cases, whether they are improving or not, until so great improvement has taken place and so long a time has elapsed that it is difficult to say whether it was time or the drugs that have been efficient.

DR. F. L. JACK: I had an idea that the cause of chorea was often reflex. I have in mind a case which I hardly know whether to speak of or not. It was one referred to me, not on account of the twitchings of the arm and face, but because of ear trouble. Upon examining the naso-pharynx a large mass of adenoids was found. I advised and performed an operation. The choreic movements were not considered at all. Two days after, the parents called my attention to the fact that the twitchings were noticeably less. In a week's time they had entirely disappeared, and I know the case ran on nine months without recurrence.

DR. LANGMAID: In regard to Dr. Jack's case, I should think it was not accident at all. It seems to me it was cause and effect, judging from other cases which have been reported. I wanted to ask Dr. Knapp if the fact that chorea in the dog generally followed distemper — as I think it does — is not possibly one reason why quinine has acted so favorably in those cases.

DR. KNAPP: I certainly can say nothing about that point, for my experience with chorea in the dog is too slight. Of course, there is a possibility as I suggested in my paper, that quinine may have some specific action, in case we assume either that the preceding distemper in the dog or the chorea itself be an infectious disease; as we know that quinine is given in other infectious diseases, relieving symptoms, reducing temperature. Of course, we see a certain number of cases of chorea in man that come on in connection with some acute infectious diseases, notably scarlet fever and acute rheumatism, but with regard to association of distemper in the dog with chorea I can say nothing.

My own experience has been, I think, the same as Dr. Prince's about chorea in the poorer classes. Certainly a very small proportion of the cases I see are in private practice, and they are apt to be the very chronic or the very severe acute cases of chorea. I have always had the belief that most of the ordinary mild cases of chorea in the better classes are treated by the family physician. Dr. Williams's suggestion as to rest is certainly a very excellent one. It naturally could not be carried out with hospital patients, and my own experience in private practice is that it is very difficult to keep a child who feels tolerably well in bed, — difficult, indeed, to get it to take more than a couple of hours' rest on a lounge or in bed during the day, even with some one to amuse it. I should like to keep every case of chorea in bed for a week or two at the first of it, but often the children are so restless that I let them get up, as the lesser evil.

DR. S. T. MIXTER read a paper on

## INTESTINAL INCISION AND DRAINAGE IN CASES OF ACUTE PERITONITIS.[1]

DR. J. G. MUMFORD: Any one who sees this manœuvre must be astonished at the extraordinary rapidity with which the patient is relieved by it. It is the same sort of thing as when we give salts or calomel and drain out the bowels, except that in the case of incision the drainage is immediate. The patient, already relieved of the painful distention, comes out of the ether in comfort. To my mind the only objection to the operation is that it takes up a great deal of time. If you open the bowel in three, four, five or more places and sew it up again I should suppose it would

[1] See page 206 of the Journal.

exhaust the patient's strength in very desperate cases. I suppose it is a choice of evils. The fecal fistula almost always heals in the course of a few weeks. It is very uncommon to have one persist.

## Recent Literature.

*First Aid in Illness and Injury.* By James E. Pilcher, M.D., Ph.D., Captain in the Medical Department of the United States Army. Revised edition, with 176 illustrations, 322 pages. New York: Charles Scribner's Sons. 1894.

Dr. Pilcher's idea has been to produce a book which shall be a manual for rapid reference in emergencies, not only for the soldier, but also for the civilian. He has tried to avoid all technicalities or procedures which require medical experience for their efficient employment. The subject is discussed in four parts.

Part I. The construction of the human machine. This is designed to furnish the reader with the knowledge of anatomy and physiology necessary to read intelligently the subsequent chapters.

Part II. The implements of repair. This includes asepsis, antisepsis, knots, bandages, dressings, and similar subjects.

Part III. Accidents and emergencies. This is devoted to a description of the most common emergencies and their appropriate treatment. The emergencies of the battle-field are discussed in two separate chapters.

Part IV. The care of the human machine. This briefly reviews sanitation, hygiene and dietetics.

To facilitate rapid reference the text is so arranged that the important facts are printed in large type. This enables the reader to separate at a glance the essential facts from accessory details or descriptions. The book is extensively illustrated, and has also a complete index. It is of convenient size for transportation. The chapter describing the ambulance-corps drill is an unusual feature, and is accurate. The book is well written, and contains much valuable information. Its author has collected many effective and practical methods of relieving the conditions which usually obtain in surgical emergencies.

*Syllabus of Lectures on Human Embryology.* An Introduction to the Study of Obstetrics and Gynæcology. For medical students and practitioners. With a glossary of embryological terms. By Walter Porter Manton, M.D., Professor of Clinical Gynæcology and Lecturer on Obstetrics in the Detroit College of Medicine; Fellow of the Royal Microscopical Society, of the British Zoölogical Society, American Microscopical Society, etc. Illustrated with 70 outline drawings and Photo-engravings. 12mo, cloth, 126 pages, interleaved for adding notes and other illustrations. Philadelphia: The F. A. Davis Co.

This little work furnishes a brief synopsis of the facts of human embryology. The leading points are emphasized with clearness, so that the book may be conveniently used to refresh one's memory. It is in the main accurate, for we notice few errors; but the notes on the nervous system are far from presenting adequately even the main facts in our present knowledge of that part of the body. This is the only serious criticism against the book, which otherwise is excellent for its purpose.

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## THE AMBULANT TREATMENT OF FRACTURES OF THE LOWER EXTREMITY.

The adoption of the plaster bandage in the treatment of fractures of the lower extremity brought with it a marked shortening of the period of confinement to bed in these injuries. The patient treated by this method, instead of being confined to bed for a month or more, is able, under favorable circumstances, within three or four days to be up and about on crutches, a marked advantage to all patients, and especially to those who bear confinement badly. The results under this treatment, in skilled hands, have been shown to have been fully as good as those of the older methods of treatment, by splints, fracture-boxes, etc., and in many of our larger hospitals the plaster bandage has almost superseded all forms of splint, in the treatment of fractures of the leg, compound as well as simple.

An able and exhaustive editorial in the February number of the *Annals of Surgery* is devoted to the discussion of certain modifications of the plaster bandage, by which patients with broken legs are enabled to walk about, bearing their weight on both limbs, without support of crutch or cane, and without interfering with the union of the broken bones.

In 1891, Krause[1] published a paper on the treatment of fractures of the bones of the leg in walking patients.

Two years later, Korsch[2] published a paper in which he described the application of the ambulant treatment to compound fractures and fractures of the thigh. He applied his plaster bandages directly to the skin, without intervening bandage or padding.

Bruns, of Tübingen,[3] described a method of treating fractures of the thigh by splints made of metal rods and leather straps, the whole leg being suspended, and the weight being brought on the tuber ischii and perineum.

Dollinger, of Budapesth, in 1893,[4] described a re-

[1] Deutsche med. Woch., 1891, No. 13.
[2] Berl. klin. Woch., 1893, No. 2.
[3] Beitrage zur klinische Chirurgie, x Band, 2 Heft, 1893.
[4] Centralblatt für Chirurgie, No. 46, 1893.

movable splint for the ambulant treatment of fractures of the leg.

Bardeleben[5] discussed 116 fractures of the leg patella and thigh, including osteotomies for genu valgum, and compound fractures, treated by the ambulant method.

The advantages of early locomotion, in addition to the great convenience and comfort of the patient, are the prevention of atrophy of the muscles and stiffness of the joints. Delirium tremens is said to be almost unknown in patients treated by this method. The treatment to be successful must be carefully carried out. The bandage should not be applied till the third or fourth day. If any swelling is present when it is applied, it must be removed in a few days, that is, after the subsidence of the swelling, and a new one applied to fit the now altered contour of the limb. In compound fractures, after the first few days have shown that no sepsis is taking place, the ambulant bandage may in the majority of cases be applied.

Korsch demonstrated before the congress at which Bardeleben's paper was read, seven cases, three of the thigh, and four of the leg, in which the ambulant treatment had been practised with good results. In fracture of the thigh passive extension was accomplished by the application of plaster directly to the skin of the malleoli, the dorsum of the foot, and the heel, counter-extension being provided by a Thomas splint of heavy wire, incorporated in the plaster bandage, which extends as high as the tuber ischii. Albers reported at the same congress seventy-eight cases, fifty-six fractures of the leg, five of the patella, sixteen of the thigh, and one of both leg and thigh treated by the ambulant method. Consolidation in malleolar fractures took place in three weeks; in fractures of the middle and lower thirds of the leg in five to six weeks. Fractures of the middle and upper thirds required from three to fourteen weeks. Fractures of the thigh treated early united in from four to five weeks. A compound fracture, converted into a subcutaneous fracture by suture, walked about after the eighth day, and was consolidated on the twenty-seventh. A patient was presented at the congress who ten days before had been run over, sustaining a compound fracture of the left leg and thigh. On the fourth day a "gehverband" was applied, and he walked with the aid of a crutch and cane. In three of Albers's cases of fractured thigh there was no shortening, and in only one case did the shortening amount to three centimetres.

Krause in the discussion at the same congress, claimed to have employed the ambulant treatment for seven years. With regard to the question whether consolidation takes place more rapidly under the ambulant treatment than by the older methods, he presents a table from Paul Bruns which shows in the main that except in fractures of the fibula, which consolidate much more rapidly under the ambulant treatment, there is little difference in the time of union of fractures of the lower third of the leg; but in fractures of the upper third consolidation takes place much earlier. In all these fractures, however, the patients are able to go to work without splints much earlier under the ambulant treatment.

Krause is of the opinion that the ambulant treatment must be limited to fractures and osteotomies in the region of the malleoli, the leg, and the lower end of the femur. He does not employ the method in oblique fractures of the femur or fractures of the neck of the same.

In this country Warbasse has practised the ambulant treatment on six fractures of the leg in the service of Dr. L. S. Pilcher, at the Methodist Episcopal Hospital in Brooklyn. Warbasse does not apply the plaster bandage next the skin, but applies first a flannel bandage from the toes to just above the knee. Twelve or fifteen layers of cotton wadding are included in the flannel bandage beneath the sole of the foot, and the plaster bandage is reinforced by longitudinal turns beneath the sole, and made to fit snugly about the enlargement of the upper end of the tibia. By this method it will be seen that the foot is suspended so that no weight comes on the lower fragment, the weight of the body being borne on the diverging surfaces of the upper end of the tibia, exactly as it is in an artificial leg for an amputation at the point of election. The results in the six cases were as good as those treated in the simple plaster bandage, and some of the patients were able to leave the hospital within three or four days, walking on the injured limb, and returning of course, daily, for observation.

The advantages of the ambulant treatment to the patient, if equally good results can be attained, are obvious enough. On the part of the surgeon it requires much greater care and watchfulness than the older methods. As has been pointed out, the bandage must be changed whenever the subsidence of the swelling has allowed it to become even slightly loosened, for in an ambulant patient the free play of the muscles would be extremely likely both to cause shifting of the ends of the fragments and delayed union or deformity.

As an objection to the general adoption of the treatment in this country, it has been stated that German surgeons were satisfied with results which in this country would bring disrepute upon the surgeon responsible for them. The results attained by Warbasse, however, leave little to be desired. Theoretically, there seems to be no reason why certain uncomplicated fractures of the lower limb cannot be so protected and confined as to allow the patient to walk about during treatment. The treatment, however, can be safely adopted only by those especially skilled in the application of plaster bandage, and should not be attempted under circumstances where the case cannot be constantly and carefully watched. A more extended trial on a large scale, in competent hands, is necessary to establish its value, and the evidence now at hand may be considered to warrant such trial. In the treatment of cases in

[5] Verhandlungen der deutsche Gesellsch. für Chir., 1894.

which confinement to bed is likely to produce delirium tremens the advantages are certainly great enough to justify the attempt.

Korsch's method of applying the plaster bandage next the skin, we think will hardly meet with favor in this country, the danger of pressure sores with their attendant disadvantages being too great. There seems to be no reason why a smooth flannel bandage applied next the skin should interfere with proper immobilization, while it would certainly be necessary to prevent abrasions in walking patients.

## A METROPOLITAN WATER-SUPPLY.

A special report upon a metropolitan water-supply, recently made to the Massachusetts Legislature by the State Board of Health, will attract much attention. It promises to provide a water of much better quality than Boston has thus far succeeded in getting, to a population of nearly two million people. It is possible to furnish this better water, because the country from which the supply is to come is the sparsely settled territory on the southern and eastern slopes of Wachusett mountain, with a poor soil, and possessing no temptations to a manufacturing population; moreover, it is comparatively free from swamps, the presence of which gives so decided a color to the waters of the Sudbury, Boston's present chief source of supply.

The plan now presented has the additional merit, that still other sources of very pure water, sufficient for any period of time for which provision should be made, can be conveniently and cheaply united to this new supply.

The important hearing before a committee of the City Council of Boston some ten years since, is probably still remembered by careful readers of the Journal. Upon that occasion many of our prominent physicians and other citizens insisted upon the more thorough removal of the soil from basins intended for the storage of water used for domestic supply.

It will also be remembered, how great the improvement was, that followed the application of this treatment to two of the basins of the Sudbury system, which had at first not been so treated; acting upon the instruction of that lesson, the authorities of Boston have caused the more recent basins, constructed on the same water-shed, to receive a more elaborate preparation even.

Such experiences as these of the City of Boston, in connection with the results obtained at the experiment station of the State Board of Health at Lawrence, prove that the great basins of a water-supply cannot be too carefully prepared for their work. So decidedly of this opinion does the board appear to be, that they state that nearly $4,000,000 of the $19,000,000 estimated to be the total cost of the new supply are to be spent upon measures of preparation immediately designed for the purpose of getting a colorless and attractive water, equal to that found in Lake Winnipiseogee.

For more than a generation men have looked to this New Hampshire lake as the ideal water-supply for the greater Boston. This report seems to have, at last, restored this charming pleasure resort to the unhampered enjoyment of the people of the whole country. It is altogether probable that the State of New Hampshire would not surrender its control of the lake, to begin with; and it now appears that the water is to a certain degree polluted and likely in the future to become much more so, and therefore undesirable.

At first sight it is a surprise to find the board turning away so decidedly from the scheme to bring down to the metropolitan district the filtered waters of the Merrimack. It was understood that they have been satisfied with the results of the use of the filtered water at Lawrence, and some threatened legal complications might have been avoided by taking water at a point where citizens only of this State were to be affected. But we must confess that the conclusion arrived at to pay a little more and take a water above suspicion, is sound and will, we believe, meet with general approval. It has been both wittily and wisely said that what we demand of a drinking-water is not repentance but purity. There is another objection to be urged against a great filter plant employing a hundred or more attendants, which is not mentioned, although the board may have had it in mind, and it is this — the possibility of a strike among the workmen, and the consequent disturbance in the supply of the most important need of our lives.

From beginning to end the report is full of interest, and should be read by every physician within the proposed district.

## NERVOUS DISEASES AND MODERN LIFE.

Dr. Clifford Allbutt, in the *Contemporary Review* for February, 1895, discusses the subject of "Nervous Diseases and Modern Life."

His lengthy article, whose prolixity is only relieved by its rhetorical brilliancy, is written from an optimistic standpoint, and opposes the prevalent view that nervous diseases are on the increase.

We may admit the arduousness of the struggle for existence without conceding that the civilized races are degenerating, and that in the evolution of our race the complex brain is becoming more and more unstable, and more prone to be upset by faulty surroundings and high-pressure life. In spite of the more direct and brutal elimination of the unfit among savages, we see obscurely in the gloom of the past or of the remoter parts of the earth that possession by devils, attacks of fury, hallucinations, frenzies and epidemic manias have been at least as common in savage peoples as in our own. On this point Dr. Tyler ("Primitive Culture") gives some striking facts.

Again, there are many diseases classed as nervous diseases which may not strictly belong to this class, or only belong to it in an anatomical sense. When disease of the skull invades the brain, the resulting

disorders are not to be regarded as primarily nervous; so, again, if the brain suffer from disease of the blood-vessels, we ought not to regard the consequent disorders as nervous in their nature. Again, certain specific affections of the nervous tissues may be secondary to intoxications, such as lead, alcohol, diphtheria, influenza, and so on; and in such cases we must acquit the nervous system of primary defect.

Dr. Allbutt believes that the widest observation will show that by virtue of its more and more complete adaptation to the varying degrees and kinds of social pressure — that is to say, of its very complexity — the nervous tissue, delicate as it is, exquisite as it is, shows a tenacity and persistence beyond most others. Old age rarely enters by the paths of the nerves or finds its first seat in the cerebral centres. If the circulation be maintained, and the excretions do not fail, the brain of old persons retains a marvellous efficiency.

Dr. Allbutt's paper brings out forcibly the relation of work to the nervous system. It is not systematic work that does harm so much as prevalent vices and sins against obvious hygiene. Distress, anxiety and worry are factors rather of alimentary and cardio-renal than of nervous disease. Many a nervous breakdown begins in a derangement of digestion; and in most instances of neuropathy ascribed to overwork, it is rather the conditions under which work is done than the work itself which has done the mischief. Many a woman works away mechanically, regardless of the hours of rest, taking little or taking improper food, poisoning her nerves with tea and her blood with impure air, and then becomes nervous and hysterical. On the other hand, the men or women who, having inherited a fairly stable nervous system, work their brains so as to get most out of them, who are temperate in meat and drink, and take care to breathe fresh air, will have little complaint to make of nervousness.

"Morbid heredity and vice apart," says the writer, "the nervous system bears ill usage as well as any other part of our bodies."

General paralysis is, no doubt, a disease of towns, and more and more, therefore, of modern life. That it has, however, no close dependence on brain work or the hurry and worry of business, is evident from its frequency among soldiers and sailors, who, although they frequent towns, belong rather to the country or the sea. The characters of this disease are such as, in the estimation of Dr. Allbutt, might warrant its classification apart from the primarily nervous, and perhaps among the infectious diseases.

It might be supposed that insanity is on the increase in certain arduous business pursuits, where the nervous wear and tear is exceptionally severe; but here, too, according to this writer, there are no official returns to justify any such inference. On the contrary, we find it just as prevalent in other callings in which nervous and mental strain is not an important factor. Classification of the insane by calling has thrown as yet but little light on causation, except in so far as the negative results fortify the belief that insanity is rather a result of physical degeneration and of hereditary transmission than of overwork and anxiety. "The increase of insanity is greatest," says Dr. Ogle, "in the agricultural laborer who does not speculate in stocks, and who lives in Arcadian peace and simplicity."

Grim as are the stories of individual trials and sorrows which are told to the physician, madness is a rare consequence of these trials, if we set aside the cases of persons predisposed to the disease. On the other hand, Dr. Allbutt says, "insanity is common enough in quiet old maids, in careless lads and lasses, in humdrum and respectable citizens of all sorts, in rustic squires, in the country clergy, in retired students, in mothers of peaceful homes, and so forth. And of most of these, whatever their lives may have been, we shall find a record of previous insanity in the family tree."

As far as statistics give any light on the subject, it has been shown that the number of insane persons officially recorded is lower by ten per cent. than the number returned as insane at the last census. This is in spite of the fact that demented and insane persons, formerly kept at home or in work-houses, are being more and more massed in asylums, and thus brought under official cognizance.

The Asylums Committee of the Dorsetshire County Council in the last report announce an ebb in the tide of insanity, and to the same purport, according to Dr. Allbutt, is the Registrar-General's Report in the census of 1891.

Finally, Dr. Allbutt insists in glowing terms that there is not degeneration but marked improvement in the physique and nervous stamina of the race; the young men and young women of to-day are stronger and more robust than their predecessors. This he attributes principally to the better sanitation of the present day, and the more scientific regulation of all the habits of life. In the case of women, it is "the enfranchisement of their faculties in a liberal education," and their greater freedom to choose their callings. The general answer, he says, to those who prate of our over-educated and over-pressed boys and girls is "Fudge." "We do our best to hurt them by our clumsy and indiscriminate methods, and we do some harm here and there; but happily there is a fund of elasticity and *insouciance* in healthy youth which, blunder as we may, we cannot crush. I have met with a few cases of naturally healthy undergraduates exhausted by intense study extending over some years; but such cases are rare, and in even these I suspect that want of exercise, fresh air and change of scene were more to be blamed than study itself."

We have heard of such cases in England, and they are from time to time reported in this country; generally the whole story is not told. Neither study nor athletics, as a rule, kill or disable young people, but ignorance and foolishness.

## MEDICAL NOTES.

CHOLERA IN CONSTANTINOPLE. — In the week following February 8th there were sixty-one cases of cholera in Constantinople, and twenty-nine deaths.

THE CONGRESS OF GERMAN SURGEONS. — The Twenty-fourth Congress of German Surgeons will be held at Berlin from the 17th to the 20th of April next. Professor Gussenbauer will preside.

A MONUMENT TO BILLROTH. — A monument to the memory of Professor Billroth will soon be erected in the court of honor of the University of Vienna. The Council of the Faculty has also decided to erect a monument to Skoda and Rokitansky.

JOURNALISM IN JAPAN. — Japan, says a writer in *La Médecine Moderne*, has now over 400 daily journals and 300 reviews. The pioneer in journalism in Japan is said to have been the proprietor of a patent medicine who started a journal to advertise his drugs.

THE TREATMENT OF TUBERCULOUS MENINGITIS. — Dr. R. Hirschberg reports a single case which was successfully treated by trephining and drainage of the sub-arachnoid space. The effect of the operation was remarkable, the headache ceased, the pulse became more rapid, the commencing coma disappeared, as well as the vomiting.— *Bulletin Général de Thérapeutique.*

UNUSUAL POSITION OF A PRIMARY LESION. — Dr. Voll, of Wurzburg, reports in the *Münchener med. Wochenschrift* for January 29th, a case of syphilis in a twenty-two-year-old woman, in which the primary lesion was situated on the back over the tenth rib about eight to ten centimetres from the middle line. The manner in which infection occurred in so curious a position, he leaves to conjecture.

A SERIOUS ATTACK OF HOMESICKNESS. — It is said to be extremely difficult for natives of Brittany to become acclimated outside their native province. An illustration of this fact was given recently in the 162d regiment of French Infantry in garrison at Commercy. This regiment received an addition of eight hundred young soldiers from Finisterre and Morbihan and within eight weeks two of them had hung themselves on account of homesickness. — *Le Progrès Médical.*

A NOVEL REASON FOR NOT INJECTING SUBJECTS FOR DISSECTION. — According to *La Médecine Moderne*, the sanitary authorities of Kieff have complained of the cadaveric odors which emanate from the dissecting rooms of the medical school in that city, and are a nuisance in the neighborhood. It seems that the medical faculty do not allow the subjects for dissection to be preserved by antiseptic injections, for the reason that this would prevent the students from acquiring practical experience in medico-legal autopsies!

ANTITOXIN OF DIPHTHERIA IN CLEVELAND. — Dr A. P. Ohlmacher, director of the pathological and bacteriological laboratories of the medical department of the University of Wooster, Cleveland, O., claims to have rendered a horse immune against diphtheria in one month and sixteen days, a remarkably short period. He also claims that this horse is the first one rendered immune to diphtheria in this country. As soon as he has standardized the serum, he proposes to begin to use it on patients, we hope with successful results.

A HOSPITAL INTERNE TREATED WITH ANTITOXIN. — M. Chabry, an interne at the Hôpital Trousseau, recently contracted a severe type of diphtheria while he was on duty in the diphtheria wards. As soon as the membrane appeared in the pharynx and the Löffler bacilli were found, he was given thirty cubic centimetres of the antitoxin from the Institut Pasteur. His condition, which was grave on the day of the injection, improved markedly on the day following. The serum injections were repeated, and he was soon out of danger. It is certainly sad to think of the number of hospital internes dead of diphtheria whose lives might have been saved by antitoxin.

A NEW NAME FOR THE CARTILAGE OF WRISBERG. — Prof. B. Fraenkel, of Berlin, has lately established the fact that the little cartilage in the ary-epiglottic fold, known as the cartilage of Wrisberg, was first described by Morgagni in the *Adversaria Anatomica.* It was rediscovered in 1770 by the German anatomist Perer Camper. Fraenkel therefore proposes that the proper name be dropped and that the cartilage be designated simply by the term cuneiform, as suggested by Cuvier.— *La Médecine Moderne.*

PHOTOGRAPHING THE UTERUS. — The *American Practitioner and News* is authority for the statement that a Swiss physician has described a method of dilating the uterus by means of tents, so that by the use of a mirror a perfect view may be obtained of the interior of the organ. Not content with this, however, he is enthusiastic enough to desire to obtain photographs of the uterine interior in various diseases of the organ. The future of woman is sad indeed if now her womb must not be only felt of, sounded, and measured, but photographed as well.

THE GERMAN MEDICAL CONGRESS. — The value of antitoxin serum in the treatment of diphtheria is one of the principal subjects set down for discussion at the German Medical Congress to be held at Munich from April 2d to 5th. The subject will be introduced by Professor Heubner of Berlin, and Prof. A. Baginsky of Berlin will read a paper on the subsidiary effects of the serum. The other subjects selected for special discussion are the therapeutics of iron, to be introduced by Professors Quincke, of Kiel, and Bunge, of Basel; and the pathology and treatment of typhlitis, to be introduced by Professors Sahli, of Bern, and Helferich, of Greifswald. An exhibition of apparatus, instruments, and preparations will be held during the Congress.

SYMPHYSEOTOMY IN ENGLAND. — At the annual meeting of the Obstetrical Society recently, Dr. Walter Griffith showed a patient upon whom he had performed symphyseotomy on October 19, 1894, at Queen Charlotte's Hospital. She was thirty-two years of age,

and a primipara. There was pelvic contraction, the true conjugate being three and one-quarter inches. The patient made an excellent recovery, and when exhibited was able to jump down from a chair. She was in very good health, and perfectly able to attend to her work. Dr. Griffith commended Tarnier's practice, in so far as the distinguished French obstetrician's method of performing symphyseotomy was concerned, but did not agree with the theory that the forceps and induction of premature labor ought to be discarded. — *British Medical Journal.*

AN EPIDEMIC PREDICTED. — Colonel Maurice calls attention, in the *United Service Magazine*, to the Chinese claim that there are 500,000 men massed around Pekin. This force has already been there for some time, and it is likely to remain for several months longer. It is an elementary maxim of military tactics that a large force of men should not be gathered until a short time before they are to be employed; otherwise an epidemic, resulting from enforced lack of sanitary arrangements, is almost inevitable. Therefore, the writer predicts that as soon as warm weather begins in the spring there will be a most frightful outbreak of pestilence in some form or other, probably in many forms, but beginning with malignant typhus in its most virulent shape. Colonel Maurice suggests that while there is yet time all foreigners in Pekin be withdrawn under adequate protection.

"ONE MAN ONE JOB." — The February number of the *Practitioner* gives the following story told by Sir George Johnson, president of the Royal College of Physicians, at a dinner of the Laryngological Society, in illustration of the extraordinary firmness with which this one-man-one-job principle is rooted in the public mind. "He (Sir George Johnson) was once sent for to see a lady who had consulted him several times for some affection of the throat. He found that she was suffering from Bright's disease. When the husband was informed of his wife's condition, he at once sent for another physician, taking it for granted that Sir George Johnson's knowledge did not extend to the kidneys. The poor lady died in a few days of her renal complaint, having very possibly fallen a victim to the absurd delusion that each man must have his own little 'allotment' in the human body, and must not trespass on any other."

A CASE OF MALPRACTICE. — Dr. Farnsworth, of Clinton, Ia., reports the following case in the *Medical and Surgical Reporter:* "The Spitz dog of a highly respectable family of this city had a difficulty with his throat. Respiration impeded; deglutition difficult. The carriage was ordered out and 'Tip' was taken to a leading surgeon. The latter diagnosed stenosis or tumor of the larynx in the neighborhood of the vocal cords, as Tip's bark had sailed away and was lost at C. An examination confirmed this diagnosis, and under chloroform an operation was performed. The dog died. At post-mortem examination it was found that some one had slipped over his head a rubber band such as druggists use to tie up packages. It had worked through the hair and bedded itself in the skin. In any case it was the cause of the dog's death, and the bereaved are now querying where to fix the blame."

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, February 27, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 59, scarlet fever 30, measles 23, typhoid fever 2.

A STEP TOWARDS EXTRA-MURAL TEACHING. — The Medical Faculty of Harvard University has voted to authorize approved physicians having the necessary facilities and desirous of teaching its medical students, to announce their courses yearly in the Medical School. Such announcements should be sent to the Committee on Applications to Teach, which consists of E. H. Bradford (Chairman), R. H. Fitz, W. T. Porter.

FOUR YEARS' COURSE AT THE YALE MEDICAL SCHOOL. — The faculty of the medical department of Yale University has decided to extend the course from three to four years, and a committee has been appointed to perfect plans for the new course.

## Miscellany.

### HEROIC TREATMENT.

IN an article in the *Edinburgh Medical Journal*, on "An Episode in Medical History," Dr. G. W. Balfour gives an account of the extent to which the treatment by blood-letting was carried when at the height of its popularity. The case of Betsey Moffat, reported in the *Edinburgh Medical Journal* for September, 1865, is well worthy of record. Dr. Balfour's account is as follows: "Admitted to hospital with a sharp attack of pneumonia, she was freely bled from the arm, besides undergoing other lowering (so-called antiphlogistic) treatment; in a fortnight she was dismissed as cured. Ten days subsequently she was re-admitted with a recurrence of all her symptoms, and a pulse of 130; she was treated as formerly by repeated venesections, etc. After two days she lay insensible, with a feeble pulse of 104, and a rattle in her throat like one dying; even her physician, Professor Gregory, admitted that she could not be further bled; but after he had stimulated her with hartshorn and sack-whey, he was able before leaving the ward to apply a few leeches to her head, and he was subsequently able to take four ounces of blood from her arm. It is satisfactory to find it recorded that Betsey Moffat recovered. One scarce knows whether to admire most the boldness of the physician or the luck of the patient."

Dr. Balfour ascribes the popularity of blood-letting at that time to the confidence established by the physician, who when in doubt, has recourse to bold measures, and if successful, acquires the reputation for daring and courage in life-saving treatment. If death occurs after such treatment, the statement can certainly be made that the most radical treatment has failed to give relief, in spite of prompt and thorough resort to it.

Dr. Balfour gives the following anecdote to establish the principle that among rude and savage peoples any treatment that shows power is regarded with respect, and does no harm to the practitioner, whatever becomes of the patient:

"'What devil is in this salt?' said an Afghan physician to the traveller Ferrier, showing him some cyanide of mercury; 'for of a hundred patients to whom I have given it only one has survived.' This active practice did the physician no harm among his barbarous compeers, with whom weakness is the only unpardonable sin."

That in our day this position of things is reversed is shown by the success of quacks who advertise the treatment of cancer, etc., by palliative measures, and gain a large practice at the expense of regular practitioners who have advised operation as the only method of treatment which can give hope of success. In many ways we seem to have degenerated since the days when heroic treatment ensured a physician's popularity. The "rude and savage peoples" who respect any treatment which shows power, would often stand a better chance of getting well, than many of the more highly civilized members of modern society.

## Correspondence.

### A DEFINITION OF INFLUENZA.

LAWRENCE, MASS., February 22, 1895.

MR. EDITOR: — A clerical acquaintance defines influenza (grippe) as "a 'cold' possessed of the Devil."

Very truly yours,

C. G. CARLETON, M.D.

### QUESTIONS ABOUT DIPHTHERIA ANTITOXIN.

NASHUA, N. H., February 18, 1895.

MR. EDITOR: — For my own benefit — and I think it would interest the medical profession — I would be thankful to you if you would kindly answer the few following questions about diphtheria antitoxin in the JOURNAL.

(1) I have seen that in London an eminent physician reported to a medical society that Behring's antitoxin caused albuminuria and casts were found in the urine. Have those effects been noticed here, with Behring's or any other antitoxin?

(2) I have seen notices that antitoxin (German) would gain strength for a few days or weeks, but after some time it would lose its properties. Is this true?

(3) If this (in No. 2) is true, antitoxin must therefore be fresh to have its full curative and preventative effects?

(4) Would you kindly inform me how long antitoxin will keep?

(5) Has the antitoxin of the Pasteur Institute, N. Y. (Roux formula) been used extensively in the hospitals in Boston?

(6) Where can I get, in case of emergency, the antitoxin that is fresh?

(7) How long does it take for the foreign antitoxin to get to the consumer here after it is made?

Yours very truly,

C. B. HAMMOND, M.D., *City Physician.*

[Nephritis is a sequel of diphtheria in some cases where antitoxin has not been used. It has also been reported in some cases where antitoxin has been used. The possibility of its occurrence does not contraindicate the use of antitoxin. The German diphtheria antitoxin is supposed to retain its qualities about five months. Whether one maker's antitoxin will be fresher or will keep longer than another's we cannot undertake to say, any more than we say what the age of any given specimen may be. Each dealer must guarantee the age and quality of his own article. — ED.]

### GALACTOPATHY.

BOSTON, February 22, 1895.

MR. EDITOR: — Dr. W. B. Sampson writes from the Transvaal, South Africa, to call attention to the advantages, in zymotic diseases, of a wet pack; not, however, of water, but of warm milk. An epidemic of typhoid fever, due to the use of milk which had stood in buckets previously washed in water subsequently ascertained to be infected, suggested the idea that, if milk would so easily absorb germs from wood, it might do the same from the human body. Experiments in cases of erysipelas seemed to confirm the truth of this theory, and, accordingly, in an epidemic of small-pox, galactopathy was substituted for hydropathy to reduce fever, prevent pitting, and soothe the nervous system; perhaps, also, in some degree, to nourish the patient. Three blankets were laid upon a mattress, and covered by a single sheet saturated with one and a half pints of fresh, warm milk (not boiled). The patient was laid upon the sheet. This was then wound tightly around him, the ends brought over his shoulders, and his arms left bare. The blankets were then, one by one, packed over him, and he rested thus for an hour. This was done once in four hours. After the pack, a warm bath or sponging.

Dr. Sampson reports that in eighteen cases so treated by him, in the small-pox lazaretto at Kimberley, before the eruption appeared, the disease was *aborted*, and the patient convalescent in five days. In one case, where the eruption had just manifested itself, the milk-pack was used twice as often. The eruption disappeared entirely within twenty-four hours, and in four days the patient was able to leave his bed.

Subsequent experiments in cases of the various infective fevers gave good results. The milk-pack was found to lower temperature, stop delirium, procure comfort for the patient and promote sleep. It is, in its action, gentle, soothing and wonderfully recuperative. It causes no weakening, but increases the patient's flesh and strength. Tried side by side with hydropathic wet-sheet packing, the superiority of the milk-pack was manifest.

In scarlet-fever, measles, typhus, typhoid, and even malarial and puerperal fevers, remarkable results were obtained. One case of scarlet fever yielded in three days. Milk compresses to the throat in diphtheria gave the best results. If this remedy should really prove as efficacious as it is simple, therapeutics has made an advance.

Very truly yours,

E. WIGGLESWORTH, M.D.

### METEOROLOGICAL RECORD,

For the week ending February 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather. | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..10 | 29.77 | 21 | 30 | 12 | 64 | 62 | 63 | W. | N.W. | 15 | 18 | C. | C. | |
| M..11 | 29.93 | 28 | 37 | 19 | 68 | 53 | 60 | W. | W. | 9 | 7 | C. | C. | |
| T..12 | 29.79 | 26 | 35 | 16 | 65 | 65 | 66 | W. | N.W. | 12 | 12 | F. | O. | |
| W..13 | 29.53 | 27 | 32 | 22 | 70 | 68 | 69 | N. | W. | 14 | 10 | T. | C. | |
| T..14 | 29.86 | 31 | 40 | 22 | 50 | 62 | 56 | W. | W. | 14 | 12 | C. | C. | |
| F..15 | 30.18 | 31 | 39 | 23 | 50 | 47 | 48 | W. | W. | 10 | 9 | C. | C. | |
| S...16 | 29.89 | 30 | 40 | 21 | 57 | 56 | 56 | W. | S.W. | 13 | 12 | C. | C. | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 16, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,956,000 | 958 | 341 | 7.50 | 24.40 | .80 | 3.50 | 1.60 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 559 | 199 | 11.16 | 22.14 | 2.88 | 5.22 | .54 |
| Brooklyn | 1,013,000 | 462 | 149 | 8.14 | 23.10 | .44 | 4.18 | .66 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 294 | 82 | 10.54 | 27.20 | — | 8.02 | 1.02 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 113 | 35 | 6.16 | 23.76 | — | 2.64 | — |
| Cincinnati | 325,000 | 115 | 39 | 10.44 | 20.01 | 2.61 | 2.61 | — |
| Cleveland | 325,000 | 106 | 51 | 9.40 | 13.16 | 2.82 | — | 4.70 |
| Pittsburg | 272,000 | — | — | — | — | — | — | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 37 | 12 | — | 8.10 | — | — | — |
| Charleston | 65,165 | 32 | 7 | — | 6.26 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 40 | 14 | 5.00 | — | — | — | — |
| Fall River | 99,233 | 35 | 15 | 22.86 | 11.44 | — | 5.46 | 1.82 |
| Lowell | 90,613 | 55 | 15 | 5.46 | 10.92 | 1.82 | — | — |
| Cambridge | 79,607 | 23 | 8 | 17.40 | 17.40 | — | 8.70 | 4.35 |
| Lynn | 65,123 | 30 | 7 | 6.66 | 13.3 | 3.33 | — | 3.33 |
| Springfield | 56,284 | 20 | 3 | — | 50.00 | — | — | — |
| Lawrence | 49,909 | 23 | 11 | 4.35 | 26.10 | — | — | — |
| New Bedford | 47,741 | 21 | 9 | 9.52 | 28.56 | — | 9.52 | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 11 | 2 | — | — | — | — | — |
| Salem | 33,155 | 15 | 3 | 6.66 | 6.66 | — | — | — |
| Haverhill | 32,225 | *21 | 6 | — | 28.56 | — | — | — |
| Malden | 30,209 | 9 | 3 | 22.22 | 33.33 | — | 11.11 | 11.11 |
| Chelsea | 29,806 | 16 | 8 | — | 18.75 | — | — | — |
| Fitchburg | 29,383 | 11 | 5 | — | 9.09 | — | — | — |
| Newton | 28,837 | 13 | 2 | 7.69 | 15.38 | — | 7.69 | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,964 | 12 | 1 | 8.33 | 8.33 | — | 8.33 | — |
| Waltham | 22,058 | 6 | 1 | — | 33.33 | — | — | — |
| Quincy | 19,642 | 1 | 0 | — | — | — | — | — |
| Pittsfield | 18,862 | 5 | 0 | — | 20.00 | — | — | — |
| Everett | 16,585 | 11 | 5 | 9.09 | — | — | — | 9.09 |
| Northampton | 16,331 | 5 | 3 | — | 60.00 | — | — | — |
| Newburyport | 14,073 | 4 | 0 | — | — | — | — | — |
| Amesbury | 10,920 | 7 | 1 | 14.28 | 28.56 | — | — | — |

Deaths reported 3,269: under five years of age 1,098; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 296, acute lung diseases 723, consumption 372, diphtheria and croup 128, scarlet fever 43, typhoid fever 41, diarrheal diseases 39, whooping-cough 15, measles and erysipelas 11 each, cerebro-spinal meningitis 7, small-pox 1.

From diarrheal diseases New York 12, Philadelphia 8, Boston and Cincinnati 4 each, Fall River 3, Brooklyn, Washington and Lowell 2 each, Cleveland and Salem 1 each. From whooping-cough New York 5, Brooklyn 4, Philadelphia and Cincinnati 2 each, Washington and Worcester 1 each. From measles New York 4, Brooklyn 3, Providence 2, Boston and Somerville 1 each. From erysipelas Brooklyn 4, New York 3, Philadelphia 2, Providence 1. From cerebro-spinal meningitis New York 2, Philadelphia, Washington, Cleveland, Fall River and Marlborough 1 each. From small-pox Philadelphia 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending February 9th, the death-rate was 20.7. Deaths reported 4,210: acute diseases of the respiratory organs (London) 480, whooping-cough 78, diphtheria 67, measles 56, diarrhea 39, fever 36, scarlet fever 32, small-pox (London 3, Derby 1) 4.

The death-rates ranged from 13.5 in Derby to 30.9 in Liverpool; Birmingham 22.3, Bradford 15.0, Cardiff 22.4, Croydon 18.1, Hull 20.2, Leeds 17.5, Leicester 14.5, London 21.0, Manchester 24.8, Newcastle-on-Tyne 19.4, Nottingham 18.2, Portsmouth 19.7, Sheffield 17.6, Swansea 21.0, Wolverhampton 23.7.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 16, 1895, TO FEBRUARY 21, 1895.

CAPTAIN HENRY P. BIRMINGHAM, assistant surgeon, is relieved from duty at Fort Grant, Arizona Territory, and ordered to Fort Trumbull, Conn., for duty, relieving CAPTAIN FREEMAN V. WALKER, assistant surgeon.

CAPTAIN WALKER, on being thus relieved, will proceed to Fort Grant, Arizona, and report for duty at that post.

The extension of leave of absence granted FIRST-LIEUT. HENRY C. FISHER, assistant surgeon, is further extended one month.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 23, 1895.

CLEMENT BIDDLE, passed assistant surgeon, ordered to Naval Hospital, Chelsea, Mass.

L. W. ATLEE, passed assistant surgeon, ordered to Naval Hospital, New York, N. Y.

F. A. HESLER, passed assistant surgeon, ordered before Retiring Board.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, March 4th, at 8 o'clock.

Dr. J. J. Putnam will read a paper entitled: "Psychical Treatment of Neurasthenia."

Dr. H. L. Smith on "Cases Illustrating the Plastic Surgery of the Nose and Palate: Description of an Operation for Cleft Palate." Discussion by Drs. H. A. Baker and Geo. F. Grant, who will be present by invitation.

JAMES G. MUMFORD, M.D., *Secretary*.

THE WARREN CLUB.— A regular meeting of the Club will be held at 11 Marlborough Street, on Tuesday evening, March 5th, at 8 o'clock.

Dr. Malcolm Storer: "A Consideration of Axial Rotation with Especial Reference to the Torsion of Ovarian Tumors."

Dr. F. C. Cobb: "The Cavities Accessory to the Nasal Cavities."

Dr. C. L. Scudder: "Case of Middle Meningeal Hemorrhage from Contre-Coup; Trephining; Recovery."

W. E. PAUL, M.D., *Secretary*.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.— The Surgical Section of the Suffolk District Medical Society will hold its regular monthly meeting at 19 Boylston Place, on Wednesday evening, March 6th, at 8 o'clock.

Dr. Roswell Park, of Buffalo, will present a paper upon "Acute Infectious Processes in Bone."

It is hoped that a large number may enjoy the privilege of listening to the discussion of a subject of so great importance. An opportunity for the presentation of pathological specimens will be given after the discussion of the paper.

C. L. SCUDDER, M.D., *Secretary*.

NORFOLK DISTRICT MEDICAL SOCIETY.— The Brookline Fellows of the Norfolk District Medical Society cordially invite the Society to a meeting for Scientific Improvement, to be held at the Town Hall, Brookline, on Tuesday, February 26, 1895, at 7.45 P. M.

"Massage in Sprains, Bruises and Dislocations," Douglas Graham, M.D.

"Treatment of Congenital Club-Foot," P. C. Proctor, M.D. Discussion to be opened by E. G. Brackett.

"A Suggestion Concerning the Preservation of the American Physique," J. W. Achorn, M.D.

Lunch at 9.45 P. M.

J. C. D. PIGEON, M.D., *Secretary*.

AMERICAN MEDICAL ASSOCIATION.— The Section on Neurology and Medical Jurisprudence have arranged the following symposiums for the annual meeting at Baltimore, Md., May 7, 1895.

"Epilepsy: Medically, Surgically and Therapeutically." "Hypnotism and Mental Therapeutics, and its Medico-Legal Relations." "Electricity: Some New Therapeutical Relations and Questions of Treatment."

Short practical papers on these topics are urgently solicited. Other papers on subjects belonging to this Section will be welcomed. Address

T. D. CROTHERS, M.D., *Secretary*, Hartford, Conn.

## BOOKS AND PAMPHLETS RECEIVED.

Hospitals for the Insane; Their Scope and Design. By Edward F. Wells, M.D., Chicago. Reprint. 1895.

Experiments and Observations on the Summer Ventilation and Cooling of Hospitals. By Morrill Wyman. Reprint. 1895.

Festschrift zum Fuenf und Zwanzig Jaehrigen Jubilaeum des Vereins Deutscher Aerzte zu San Francisco, Californien. 1869–1894.

Sixteenth Annual Report of the State Board of Lunacy and Charity of Massachusetts, January, 1895. Boston: Printed by the State. 1895.

Ein Beitrag zur Kenntniss der Verbreitungsweise der Hautnerven beim Menschen. Von Victor Bychower aus Feodosia (Krim). Strassburg. 1888.

Neudörfer's Method of Amputating Extremities, with a Report of Two Thigh Amputations. By A. H. Meisenbach, M.D., of St. Louis, Mo. Reprint. 1894.

## Original Articles.

### THE SURGICAL TREATMENT OF FIBROID TUMORS OF THE UTERUS.[1]

BY JOHN HOMANS, M.D.,
*Surgeon to the Massachusetts General Hospital, etc.*

IN what I have to say in regard to the treatment of fibroids, I shall not attempt to mention all the names of the very eminent operators who have written on the subject. I doubt if one man could read in a day the communications published during twenty-four hours on this subject. You can read them for yourselves in the *American Journal of Obstetrics* and in the various other journals and medical magazines published at home and abroad. My remarks will be drawn from my own experience, and, such as I have to make, would be confused and uninteresting if mixed up with references to others' writings, so I will not try to mention all those I would like to, because I think it would lessen your interest in the subject and make my paper too long. Let me say at the beginning that my remarks will have no reference to fibroids presenting themselves at the uterine or vaginal outlets. For such the proper treatment is removal per vaginam, and this has always been successfully done by me in all cases where the patient had not become septic; this last condition being common where a large fibroid of many pounds' weight has begun to protrude after labor, the condition not being recognized by the attending physician for some days, until sloughing fibroid, uterus, and the patient herself have become thoroughly septic. So much for fibroids extruding or being expelled from the uterus. What I have to say will be limited to the surgical treatment of fibroids after the abdominal cavity has been opened. The dealing with fibroids by abdominal ablation is becoming more common as we become more certainly successful in our methods of operating, and feel confident that we can remove a non-adherent fibroid tumor in a fairly healthy woman without much violence and with almost sure promise of success.

Fibroids do not always cease to grow at the menopause; many of them do, but in many cases they grow and give rise to hemorrhage and other serious symptoms. They also sometimes become cancerous. This condition I have seen twice. Wisdom is shown in choosing the cases requiring operation.

The reasons which lead me to remove a fibroid by abdominal section are: (1) If it actually causes much discomfort. (2) If it threatens death by hemorrhage (and it does sometimes not only threaten, but causes it as suddenly as a pulmonary hemorrhage does). (3) Because it may increase and become too burdensome to allow life to be worth living. (4) Because it may develop a cancerous character. (5) Because by its pressure on the abdominal organs it may destroy life. (6) Because it may become cystic and thoroughly adherent. Such a tumor I have never successfully removed. I do not mean fibroids with dilated lymph-spaces, but fibroids with cysts as clear and distinct as those in ovarian tumors. (7) Because it may be an ever-present anxiety. (8) Because it may cause edema of one or of both extremities and phlebitis, to be followed perhaps by the passage of an embolus into the circulation, causing death by renal or hepatic disease. (9) Because they sometimes are twisted with the uterus as a pedicle and must be removed at once to save life. I have seen this once. (10) Because a very sensitive single woman, in good health, and active, demands its removal on account of the disfigurement it causes. (11) Because the operation, to-day, in experienced hands, is almost uniformly successful. The mortality from all cases, promising and unpromising, probably varies between three and ten per cent. The reasons for not operating are: (1) When the tumor gives no trouble, uneasiness or disturbance and the patient does not desire its removal. (2) When it is not accompanied by hemorrhages. (3) Because no one can positively say that it may not remain stationary or even retrograde. Without being omniscient, we cannot tell the future course of a fibroid. I have watched some tumors twenty years and more, and then removed them because they have grown and become annoying, and I have watched others grow smaller; but I operate more frequently than I used to. I have seen about 650 fibroids, and I have operated on but 93. I should have done well to have operated upon a greater proportion of them.

Some years ago, in 1887, I think, my friend Dr. Keith, then of Edinburgh, now of London, wrote me that I must lay down my knife from fibroids and that they could be treated successfully, that is, made bearable, by electrolysis, *à la* Apostoli. To this treatment I gave a thorough trial for nearly three years, and then abandoned it as a routine method, as uncertain, unsatisfactory and tiresome in the extreme; but I still use it in certain cases of hemorrhage and pain in a patient otherwise strong and whose tumor is quiescent. I published all my electrolysis cases, results, and conclusions in the Boston *Medical and Surgical Journal* for March 12, 1891. The cure of fibroids by removal of the ovaries and tubes is uncertain. Perhaps the ligature of the ovarian artery by cutting off a portion of the blood-supply to the uterus has much to do with the success which sometimes attends this procedure. I have seen a fibroid the size of a cricket-ball entirely disappear at the end of four weeks after removal of the ovaries and tubes, and I have seen some continue to grow, and one to be extruded from the os uteri two years after removal of the ovaries and tubes, the tumor having become a large polypoid growth, and the woman had lost her ovaries unnecessarily two years before. I think we may dismiss this plan of treating fibroids by removal of the ovaries and tubes as uncertain and unreliable. As I have said before, it does not seem necessary to enumerate all the surgeons who have contributed to the literature of the treatment of fibroid tumors. In the United States Martin, Dudley, Gordon, Baer, Baldy, Byford, Kelley, Edebohls, Polk, Price, Krug and others have reported excellent work and intelligent practical measures. In Germany, besides Schroeder, Hager, Kaltenbach and many others have written on this subject. The method which I have gradually, and independently, come to use is nearly like the operation called the Schroeder-Hoffmeier method, but it removes more of the uterus and is more simple in the application of the sutures. So far as I am concerned, it is the outcome of my work and experience during the past thirteen years, and I am satisfied with it, though I hope to improve upon it.

There are four principal methods of removing the tumor and treating the pedicle. The intra-peritoneal,

[1] Read before the Boston Society for Medical Improvement, January 7, 1895.

first described by Schroeder; the extra-peritoneal, Koeberle and Pean; complete removal of all uterine tissue, first, I think, described by Eastman; and the method of vaginal fixation described by Byford. The method of treating these tumors by ligature of the uterine arteries from the vagina, recently proposed by Franklin H. Martin, must not be omitted, and bids fair to be useful. I have long ago given up the extra-peritoneal treatment by means of the wire and écraseur. It has always seemed to me unsurgical and clumsy. Indeed, in many cases it would be impossible to get the wire around the tumor until it had been enucleated, and by that time it would have been so nearly removed that one had better tie the uterine arteries than compress them by the wire, and cut off the tumor, sewing the peritoneum together over the stump.

Such a case I lately operated on in a woman fifty-eight years old. Her physician, Dr. A. D. Sinclair, had known of the presence of the tumor for eleven years, and she was sure it had increased in size rapidly during the past four months. The abdominal walls were thick with fat, and the tumor felt very elastic, more like an ovarian than like a uterine tumor. On opening the peritoneum the tumor was seen to be uterine, and could not be lifted out of the abdomen. It had grown from the posterior part of the neck and body of the uterus, and the intestines were incorporated with the peritoneum on its under surface and its upper end; that is, they lay in the peritoneum, which formed the capsule. There was no other way to get this tumor out but to make an incision through its peritoneal covering at its upper side and peal the peritoneum, with the intestines, back. In doing this the left ureter was laid bare for a large part of its length, and was carefully dissected from the tumor. If I had pinched up the tumor in the wire of an écraseur, I should either have enucleated it unintentionally or I should have included some part of the bowel or of the tortuous ureter in the noose. Or suppose that I had carefully enucleated the tumor before the application of the wire, I should only have had the neck left to be constricted; and how much more surgical, neat and dexterous to divide this, after ligature of the uterine arteries, and turn it out and cover the back of the stump with peritoneum, making the treatment of the stump extra-peritoneal, than to encircle it with a wire noose and transfix it with a long pin and straddle the abdominal wound with the pin, leaving the stump and the neck to slough away in two or three weeks, instead of having an abdominal wound with no break in its continuity. The convalescence is surprisingly rapid in many of these intra-peritoneal cases. In one case it was difficult to persuade a patient to remain more than two weeks after the operation. I am sure that the treatment by the wire écraseur will soon be wholly abandoned.

I prefer the intra-peritoneal treatment, so called, though it is really extra-peritoneal. The method which I follow in removing a fibroid tumor is the following: The patient is placed on a liquid and farinaceous diet for thirty-six hours before operation; the pubes are shaved; the abdominal walls are rendered aseptic by means of a hot bath, soap and water, ether and bichloride solution, and are covered with a bichloride-of-mercury dressing at least twelve hours before the expected time of operation, and this is changed immediately before the operation; the vagina is thoroughly douched with sublimate solution, after being mopped over with soap and water to get rid of the grease. The bowels are opened and the rectum thoroughly emptied. Everything to be used in contact with the patient or the operator and his assistants is thoroughly sterilized, and the patient is wrapped in a sterilized flannel suit made out of a large, thick blanket, either in one piece or in two pieces like pajamas. This was suggested to me by my *first* assistant, Dr. Edward A. Pease, and is one of the causes of success. It prevents any lowering of the patient's temperature, and keeps her warm during the operation and afterwards. I regard this as one of the important procedures in these cases. The legs and arms of the wrap are sewed up at the ends, and the abdominal portions can be tied together with tapes, and loosened and separated for the purpose of making the incision in the anterior abdominal parieties. There is no place for the external air to get in, except while the abdomen is open. As I have said before, this flannel garment has been sterilized, and so have the sheets, towels, ligatures, instruments, etc., used in the operation. The patient is placed in the Trendelenberg position. Indeed, without this position the intra-peritoneal removal of fibroids in a satisfactory manner would be almost impossible. The incision is now made of the required length and the tumor is delivered at once, if free from adhesions, by means of the corkscrew, or by any method of traction which seems most easy. A piece of gauze spread over the tumor is found very convenient in preventing it from slipping away from the hands of the operator. A large piece of gauze is now put in the abdomen over the intestines, and the sides of the incision above the tumor are often fastened together by catch-forceps or by a temporary stitch to prevent the intestines from protruding and to keep them clean and warm. The tendency of the bowels to protrude varies in different patients. In most cases the intestines lie still and quiet. In others they seem to leap out of the abdominal cavity whenever they get a chance. If in the process of lifting the tumor out of the abdomen adhesions are discovered, it is best to secure them in some way or to pass an elastic ligature around the neck of the tumor or of the uterus to prevent hemorrhage. This last procedure is rarely necessary, and I have never done it for this purpose.

When the broad ligaments are seen, I usually tie the left one first, passing the ligature low down and close to the uterus by means of Cleveland's needle, being most careful not to perforate the bladder; then I tie another ligature about an inch further away from the first towards the ovary and beyond the tube, or beyond the ovary and the tube, and divide between them. The tube, if left intact on the uterine side, prevents infection from a source to which the patient would be exposed if the tubes were opened. I leave the broad ligaments as long as possible, so that my seam over the stump when the operation is finished will be a short one. I do not care whether the ovary is tied off or not, nor do I necessarily remove it, for it is well supplied with blood from the ovarian artery, and will not slough when its uterine connections are cut off, and in fact, may be well enough nourished by adhesions; besides, if it remains, perhaps the physiological symptoms, which are often annoying after removal of the ovaries and uterus, the so-called "heat flashes," etc., may not occur if the ovaries are left. For the ovaries are the reigning powers in the generative organs. The expression

should be, "The ovaries and their appendages," not "the uterus and its appendages." The uterus and vagina are simply channels for the nourishment and passage of the ovum and fetus, the product of the ovary, and serve to expel the infant into the world. The vagina may be wanting or the uterus may be wanting, but their absence does not imply that of the ovaries. If the latter, however, are wanting, the other organs, I believe, always are.

I now go through the same process on the right side, and then make a circular incision through the peritoneal covering of the uterus in front about two inches above the outline of the bladder wall, which can usually be plainly made out by sight without passing a sound into the bladder, and the same distance above the rectum behind, the two incisions meeting on either side where the broad ligaments are tied, exactly as one would make a circular incision for an amputation of the thigh. These peritoneal flaps I then turn back, by the aid of this little spade-shaped instrument, which is a copy of a periosteum retractor in our case of instruments for cerebral surgery at the Massachusetts General Hospital, or else I use a duckbill-shaped blunt dissector, or my fingers. By not getting beneath the peritoneum into the muscular tissues of the uterus the separation is easy and bloodless, but if at all deep it is difficult and hemorrhagic. The uterus above the internal os in now denuded of its peritoneum and is ready to be divided. I then feel for the pulsation of the uterine arteries; and if I find them easily (and they are quite superficial), I tie them by passing a ligature of silk around them with an aneurism needle, each one separately; but if I do not feel them easily, or if there is a hemorrhage going on, from my flaps having been made too thick, I encircle the uterus at the denuded point with a strong, small, solid cord of rubber, and having tied it securely, I cut the tumor and uterus away, and later secure the uterine arteries at my leisure.

I now trim away the uterine tissue by a slanting cut in front and behind, the apex being at about the level at which the uterine arteries have been tied. I cauterize very thoroughly the uterine cervical canal at once, as soon as it is opened, with Paquelin's cautery. I always pass the point through the mouth of the uterus well into the vagina and allow it to remain there several seconds. A cauterization must be so thorough that the opening remaining will be large enough to act as a drain for the sloughing which always follows a hot iron, otherwise the external os may get occluded by the swelling (which naturally follows any injury to living tissues); and infection from the sloughing mucous membrane, might work its way back and contaminate the stitches by which the abdominal end of the stump is closed, and perhaps also the space lying between the stump and the peritoneum. One of the advantages of the closing of the peritoneum is that even if this blind space does get infected and an abscess is formed, the peritoneal cavity is not infected, and only a localized collection of pus is formed which may open spontaneously or be opened from Douglas's cul-de-sac. This I have never been obliged to do, though nature opened such an abscess for me once. There was good drainage, however, and with hot vaginal douches the trouble soon ceased.

Next I sew the muscular walls of the neck together by a continuous suture of silk over the cervical canal, so as to shut out the neck from the abdominal cavity. In sewing the sides of the stump together, it is important that the silk be put through healthy tissue and not allowed to pass through the tissue which has been cauterized, as this must slough away, and in this way the silk may get infected and cause an abscess or a discharge from the ligatures.

I then sew the peritoneal flaps together by a light continuous suture over the stump. I always use fine English braided silk, No. 4, for this suture I do not dare trust to the aseptic qualities of catgut. You will see that although this method is called *intra-peritoneal* it is really *extra-peritoneal*, even more so than the plan by which the neck is constricted by the wire and held outside the skin of the abdomen by a pin across the abdominal wound. I next turn my attention to the ovarian and round ligament stumps and tie the ovarian artery again separately. If the ovaries have been removed in whole or in part, I decide whether to remove them more completely or to leave them. There is now a sutured line running across the lower part of the pelvis, and, if there is no oozing, the abdomen is emptied of the sponges and pieces of gauze which have been put into it, the patient is lowered into a horizontal position, and the intestines descend to their normal place; the omentum is, if possible, spread over them and the abdominal wound is closed with silkworm-gut without drainage.

The flannel suit is left upon the patient for twenty-four hours or more, according as seems best and most favorable. The convalescence is like that after simple ovariotomy. The patient is generally up and about on the fourteenth day, and goes home by the end of the third week. This rapidity of convalescence is a great contrast to that following the treatment of the pedicle by the clamp. In the latter case convalescence is slow. The wire comes away sometimes as late as the third or fourth week, and the slough beyond the wire a week or two later; the abdominal wound is left with a depression at its lower part, which gradually, in the course of a month, fills up with granulations and rises more or less to the level of the surrounding skin. Something of the depression remains permanently, and this spot where the stump has come away, frequently becomes the seat of hernia.

I do not believe that there is much difference in the mortality between the extra- and intra-peritoneal (so-called) methods, success depending more on asepsis than on method; but if there is any difference, it would seem to be in favor of the so-called intra-peritoneal treatment. The whole success of these operations depends upon perfect asepsis combined with experience in abdominal surgery, a kind of surgery which cannot be taught, but must be learned.

During the last eighteen months I have removed 26 fibroid tumors by this method in my private practice. There has not been a single case of septicemia. One patient died twelve hours after operation, of shock, loss of blood from separated adhesions and diffuse nephritis (Whitney), the method of the operation having nothing to do with the result. All of the others (25 in number) recovered.

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"The Health, Sanitation, and Climatology of the Southern States" is the title of a new quarterly journal devoted to sanitary science and medical climatology, and to a consideration of the health resorts of the Southern States. Edited by Walter C. Murphy, M.D., and published at Washington, D. C.

## REMOVAL OF THE UTERINE APPENDAGES FOR NERVOUS DISEASES.[1]

BY W. H. BAKER, M.D.

GREAT relief has come to the nervous diseases of women through the adaptation of asepsis in surgery by the gynecologist. This is the most apparent to those of us who had the trying experience of dealing with a class of cases vaguely described as ovaritis, pelvic abscess, or chronic cellulitis, and presenting physical conditions which were masked, indistinct, surrounded by the greatest uncertainty, and made apparently somewhat clearer at times by the greater prominence of an attack of localized peritonitis. Yet the primary cause of this same peritonitis remained surrounded by the greatest mystery.

That the theories advanced by Noegarath, in regard to the effect of gonorrheal poison on the tubes and ovaries, more than twenty years ago, should have been so slow in being impressed upon the minds of the profession and its tardy acceptance even then, is one of the gynecological wonders of the present age. Nor was it until the comparative safety in opening the abdomen was proved, that the acceptance of his theory was finally established. About the same time came the adoption of the idea of sepsis introduced from without, in the woman just delivered, as a cause of puerperal fever; and no one can forget the warfare in New York led to such a glorious victory by Dr. T. Gaillard Thomas.

With the frequency of abdominal sections for pelvic diseases the gynecologist was forced to admit the importance of tubal diseases as the cause of the recurrent peritonitis, which with its exudate had matted together the viscera in the pelvis resulting in the mass which had been considered chronic cellulitis. In other words, his touch, practised through the abdominal incision, separating adhesions and enucleating the mass, intensified by sight, both at the time of operation and in subsequent examination of the specimen removed, proved the fallacy of his previous theory and settled in his mind beyond a doubt the importance of the various diseases of the Fallopian tube, and their great significance in the subsequent rôle of pelvic inflammations.

The great help which the pathologist rendered in the clearing up of the vagaries of this subject came rather after the settlement of the facts in the mind of the clinical observer, and was given through his careful and thorough investigation of the parts removed and the frequent detection of structual changes in the tubes and ovaries which fully accounted for the observation of gynecologists and the sufferings of the patients. Nor is this surprising when we consider the infrequency with which death followed as a direct result of such tubal or ovarian disease, and that in such exceptional cases the matting together of the whole pelvic viscera, with possibly the abscess involved, and very likely the general peritonitis as well, all tended to mask the seemingly unimportant Fallopian tube. The condition of the patient in such cases was rather one of long invalidism and nervous derangement than of immediate danger to life. The means which nature provided in the plastic exudate, while protective in the matter of life, was too frequently the occasion of renewed suffering and nervous disease through its interference with the functional activity of the organs involved. That the working out of this problem of pelvic inflammation was not only the legitimate field of the gynecologist, but was developed step by step, must be recognized by all. It was his educated touch which, brought into direct contact with the diseased organs (generally at that time unseen until brought through the abdominal incision), that accomplished so much in the elucidation of pre-existing erroneous ideas. That the progressive stages which led up to the infrequent resulting death and the observations of the pathologist, were found by the gynecologist in the frequency of his operations and observations are perhaps expressed in degree from the first effort of nature to protect its vital peritoneal membrane in the sealing of the fimbriated extremity of the Fallopian tube to some part of the pelvis or the ovary on the one hand, to the extensive matting together of the pelvic viscera with a pyosalpinx as to its nucleus in the other instance.

When we consider the disturbance of nervous equilibrium so often produced by even the slightest change in the functions of the reproductive organs in women, we are prepared to accord to these organs the great importance which they exercise over the nervous system of the female during the period of menstrual activity. In verification of the fact, we have but to refer to the often-observed cases of delayed menstruation and the effect produced either through the suffering involved or the nervous excitability produced.

There is no definite stage or limitation of extent of inflammatory disease of the tubes or ovaries that marks a point where nervous disease shall begin or yet denote the character or degree of such nervous manifestation; it is rather a matter of nervous tolerance to the existing pelvic change, which must necessarily vary with the individual. It will be generally observed, however, that in those women of greatest nervous development and of the highest intellectual attainments there exists the least nervous tolerance to diseases of the uterus or its appendages. More especially is this true in such women as have not shown a corresponding physical development; or, again, in such as through sickness have had the physical strength impaired and have thus brought a greater strain on the nervous system.

Dr. T. Addis Emmet has shown, more than any one, the importance of cicatrical tissue in the vagina or cervix uteri as occasioning great nervous disturbances, and proved beyond a doubt that the latter was a result of the former in the ready disappearance of the nervous phenomena following the operation for the removal of the scar; and it is my opinion that this same sort of tissue on the intra-pelvic peritoneum as a result of inflammatory exudate is a not inconsiderable factor in occasioning serious nervous symptoms. That such symptoms have been usually ascribed to the distorted and fixed state of the ovaries and tubes I am well aware, nor would I underrate the importance of such in the production of such phenomena, but I would add the importance of the presence of the fibrinous product itself with all its contractiie tendency as a factor in itself, in the production of the nervous symptoms. When we see this self-same product deposited in the substance of the organ, whether it be the uterus, ovaries or tubes, and find in the later stages of the inflammatory process the cicatrical reaction having occurred, we then look for the greatest amount of bodily suffering as well as nervous symptoms; for in such a case we have the least degree of nervous tolerance to the diseased state on account of the greatly weakened

[1] Read before the Boston Society for Medical Improvement, December 10, 1894.

state of the nervous system through the long endurance of pain induced by the structural change.

The brilliant results which have recently been achieved in other parts of the body through the instrumentality of the surgeon, directed by the neurologist after the most careful study and close observation, are highly gratifying; and we would not have the same careful observer, in the field of nervous disease fail to apply his energies or recognize the importance of these pelvic factors in the production of nervous disturbances, even though they may be less serious or immediately alarming than the lesions of the brain. Let it be remembered that the delicacy which surrounds the pelvic lesion in the mind of the patient leads her generally to suffer without complaint, nor does she always realize that the suffering she endures is not the natural result of menstruation or child-bearing. Thus she is led to bear the extra strain with all patience until she is completely exhausted nervously, and a train of symptoms present themselves that can no longer fail to be recognized in their relation to the pelvic organs, or perchance the grave symptoms of melancholia are inaugurated. Can anything be more important than saving the reason of our patient? Yet who can tell how long she can endure the nervous strain from the suffrance of pelvic lesion to which reference has been already made?

Two things have led to much disappointment in the removal of diseased ovaries and tubes for the relief of nervous disease, namely, the expectation of a *too speedy result* after the successful performance of the operation, and the *postponement of surgical interference* until an amount of nervous damage has been done which is beyond power of relief.

In the first instance we must remember that the process of the pelvic inflammation is usually a slow one, recurrent in its tendency and often increasing in degree and intensity; thus it is only after months or years of suffering that the nervous system becomes so far impaired as to become, it may be, the prominent feature in the case. It is thus far too much to expect an immediate return to health nervously, after the recovery from the operation. What is to be claimed for the operation is rather a relief from physical suffering, and from the recurrent attacks of pelvic inflammation, thus making it possible for the nervous gain, which in its turn must be accomplished by a persistent carrying out of such rules and treatment as would be used by the physicians in any case of purely nervous origin.

Under this head we sometimes see cases reported as failures, which, taken soon after the operation, have shown very little nervous gain, or it may be by the increased nervous strain of the operation itself, show a worse condition nervously than before the operation. Yet the self-same case, if judged, one, two or even three years after the operation — due care and appropriate treatment having been given to the nervous system — we find in the full enjoyment of health. It not infrequently happens also that the very same means of nervous relief has entirely failed when adopted before the operation.

In the second instance, the physician is loath to advise the removal of the uterine appendages for nervous relief until the nervous disease itself is far advanced; and it too frequently happens that the consent to the operation is not obtained from the neurologist or the psychologist until an amount of damage has been done nervously or mentally which forestalls any hope of relief by *any* method of treatment.

I would not be understood by this, to advocate the too speedy resort to operation on the pelvic organs in nervous diseases of women, nor to support the wholesale ablation of the ovaries and tubes, which I fear has been practised in some sections of our country; but I would insist upon the resort to celiotomy, even if it were only as a means of perfecting our diagnosis in any doubtful case, in view of the frequency and importance of such sequelæ to pelvic inflammation, and I am sure from my clinical experience that the cause of such nervous disturbance will very often be found to exist in the results of a previously existing inflammatory process in the pelvic peritoneum. Of course, it is to be understood that in any such case the vaginal examination should give evidence of the existence of such pelvic disease before we should feel warranted in opening the abdomen.

Now let us turn to another view of our subject, namely, when some uterine or tubal disease exists which is the cause of various nervous manifestations, and for which the removal of the healthy ovaries is practised. This may be well illustrated by the existence of a small fibroid in the uterine wall. It is at once admitted that the presence of a fibroid does not usually occasion such phenomena; yet cases do sometimes occur where such a result is observed and where the location of the growth is such that its removal would only be practical by including the whole of the upper segment of the uterus in the operation. Now, if the uterus and fibroid together are not larger than the gravid uterus at the third month and the patient be thirty-five years of age or more, the removal of the uterine appendages, even though they be entirely healthy, will be found to be one of the surest means of restoration to health; and this with the minimum of risk to the patient.

We have undoubtedly noted the great degree of tolerance, both physical and nervous, in the majority of cases of moderately large fibroids, yet it is probably a fact that but few of us have noticed the exceptional cases of great nervous disturbance from the reflex irritation of a small fibroid of the uterus which is seemingly out of all proportion in its importance in the locality compared with that found by its presence in other parts of the body. This fact would be ascribed to its affecting an organ, the perfect performance of whose functions, influence in so great a degree the whole nervous equilibrium of the woman.

Again, in rare instances we find an undeveloped state of the Fallopian tube a cause of nervous disturbance. In such cases the symptoms are likely to be inaugurated at the time of puberty and to steadily increase until the patient becomes a nervous wreck.

Cases almost without limitation might be given in support of the foregoing, but this would be of little value except from a statistical standpoint. I desire, however, to give two or three illustrative cases.

### Results of Pelvic Peritonitis.

Case I. Illustrative of the effect of adherent tubes and ovaries on the nervous system.

Miss A. B., a Swedish woman, twenty-nine years of age, entered the Free Hospital for Women June 2, 1890. She was unmarried and had complained of severe dysmenorrhea for six years. This pain had steadily increased, and for five years she had been suffering from headaches before and after the menses.

Menstruation began at sixteen, and did not become regular until eighteen; was never very abundant, seldom using more than three or four napkins. She had always been a hard-working woman. Could obtain no clear history of gonorrheal infection. Entered the hospital as she was incapacitated for work one week out of each month, and therefore could not keep her place at service as a domestic.

Diagnosis was made of left retrolateral version of the uterus, with adherent tube and ovary to left pelvic wall; constriction of canal of uterus at os internum. June 12th, Dr. Kaan dilated the constriction of the canal with Hanks and Ellinger's dilators.

For three years after this operation her position was such that I saw her about her work repeatedly, and was often consulted by her about her condition. She was relieved from a certain part of the menstrual pain by the dilatation, but the headaches continued, and she grew irritable, wanting in patience, and finally suspicious of the motives of those about her, — at times quite irresponsible for her actions. All these symptoms were greatly exaggerated on the approach of a menstrual period. Longer delay of surgical interference was deemed unwise, and she was readmitted to the Free Hospital for Women May 6, 1893. I performed celiotomy, and removed both ovaries and tubes, which were found so strongly attached to the pelvic wall that the adhesions could not be separated with the finger, but I was obliged to cut them with the scissors. The bands of adhesion were large, strong and dense, requiring much time in their separation. The uterus was finally sewed to the anterior abdominal wall and the incision closed. She made a good recovery from the operation, and was discharged from the hospital May 30, 1893. From a period soon after her discharge up to the present time she has been employed in the families of friends or patients of mine, so that I am quite familiar with her condition. The headaches have entirely disappeared. She now appreciates that the people she is with are her friends and not her enemies; is happy and cheerful instead of despondent; loses not a day from her work, which is of an arduous nature. In other words, the result of the operation, now eighteen months past, is highly gratifying.

### INTERSTITIAL DISEASE OF THE FALLOPIAN TUBE.

CASE II. Illustrating the importance of the most careful search for disease of the ovaries or tubes in cases of long-existing nervous symptoms which have not yet yielded to the ordinary general treatment.

Miss M. J., an American lady, thirty-three years of age, consulted me April 19, 1889, on account of inability to resume her duties as a teacher in one of our public schools. She was highly educated and cultivated; her surroundings from childhood had been among the most intellectual people. She began to teach at a very early age, before she was seventeen, and had continued at that vocation ever since. She had broken-down nervously three years before consulting me, and had been in bed fourteen weeks at that time. Had the best of medical advice and care for her nervous gain. There was very little to point to any pelvic trouble, certainly nothing that might not easily have been explained by the nervous debility; such as a dragging feeling across lower abdomen on standing, or walking too far, relieved sometimes by lying down, and dysmenorrhea the first eight or ten hours of the flow. Her chief complaints were her inability to apply either her mind or body to any effort; constant depression, and apprehension as to her condition of health, occipital headache; inability to walk alone on account of dizziness; constant feeling of fatigue, more marked in the morning; want of sufficient sleep at night, often being awakened by a backache referred to the spine. She consulted me on account of the ineffectual result of her treatment, which for three years had been directed to her physical and nervous gain, thinking that possibly there might be some pelvic cause for her trouble. On making a physical examination, I found an anteflexion of the body of the uterus and endocervicitis present. The discharge from the endocervical membrane was highly irritating, causing abrasions of the epithelium about os uteri and to a slight extent about vulva and anus.

An anteflexion pessary was adjusted and an astringent application made to the endocervical membrane. These agents relieved in a measure the difficulty of standing, made it more possible to take longer walks and did away with a previously troublesome feeling of frequent action of the bowels, not loose in character, but formed, though of small amount.

For the next year every attempt was made by the aid of nervous tonics, massage, galvanism and rest to regain the nervous tone, but without effect. For the period of a few weeks the pessary was removed to see if its presence was preventing her gain, but she lost ground, and the annoyance of the frequent dejections returned and she could not stand or walk.

In February, 1890, a careful examination by the aid of an anesthetic revealed a thickened, cordlike feeling of the Fallopian tube on the left side, and an exploratory celiotomy was advised, not only by myself but by Dr. George L. Walton, who kindly saw the case with me.

This operation was performed April 14, 1890. Both ovaries and tubes were found free; a small cyst, the size of a marble, of the left ovary ruptured in removing. Left tube thickened and cordlike throughout its entire length; right one the same on proximal half. Both tubes and ovaries removed. The recovery from operation was uncomplicated, and she left the hospital May 20th.

The nervous symptoms continued, as previously described, after the operation for a year without being much of any abated. The second year she was able to take a place as night nurse at one of our hospitals; after that she had so far regained her strength, nervous and physical, that she was admitted as nurse at one of the leading training-schools of this country, where she remained two years and graduated; since which time she has been constantly employed in active nursing and feels quite equal to her duties. In fact, she has no complaint to make and considers herself perfectly well.

### INTERSTITIAL FIBROID OF THE UTERUS.

CASE III. Illustrative of a class of cases where the removal of the healthy ovaries and tubes is advisable for the relief of nervous symptoms occasioned by some uterine disease.

On May 24, 1876, I was called to see Miss L. H., who not recovering well from an attack of supposed threatened typhoid fever, but really of nervous exhaustion, and suffering considerably from backache, thought there was likely some pelvic explanation for her condition. She was an American, thirty-five years of age, her occupation a teacher in one of our higher

educational institutions of this city. She was a lady most refined and intellectual, possessing great capacity in her avocation. She had been unable to teach for five months prior to my visit, the prolonged strain of her duties having resulted in a complete giving out of her nervous strength. There had been no pelvic symptoms until within a very few months, even then not very distinctly marked, although on close inquiry, she admitted that for a year or two there had been slight dysmenorrhea the first day of menstruation. The menses were otherwise natural. Since being obliged to give up teaching, she had begun to suffer from occasional headache.

On making vaginal examination I found the uterus in the second degree of retroversion; otherwise the pelvic organs seemed normal. I replaced the uterus and adjusted a pessary; which I find from the record of the case, examined five months afterwards, held the organ in good position, and she was then able to take a good amount of physical exercise, but could not bear much nervous fatigue. She was advised not to resume her position as teacher for a year and to persist with her physical exercise.

In October, 1876 (the same year), she took a position as assistant nurse at the Free Hospital for Women, where she remained for about eight months and was enabled to perform the duties developing upon her most satisfactorily.

In January, 1878, she having in the meantime gone abroad with patients, having entire charge of them, I considered her physical condition so good that I removed the pessary, and three months later found the uterus in good position. Still the headaches continued, and seemingly were becoming more regular either just before or after the menstrual period.

For the next four years there were no special symptoms referrable to the pelvis, but the headaches increasing in frequency and severity ascribable to no definite cause, a vaginal examination was made under ether. This revealed a somewhat enlarged uterus, measuring three inches in depth of its canal, and thickened through antero-posteriorly on its left aspect. On account of the greater weight of the organ a pessary was re-adjusted, but had no effect in relieving the headaches.

In the fall of the next year, having dilated the uterine canal, under ether, I examined the uterus bimanually and found an interstitial fibroid growing in the left wall of the uterus, the organ being enlarged to about three times its natural size. The headaches were steadily increasing in severity, extending from occipital to frontal regions, and obliged the patient to give up entirely for a day when at their height, and required the greatest effort to keep about her work for one or two days more. She had never felt equal to resuming her duties as a teacher, but had continued those as nurse. When not suffering with a headache, she was able to accomplish a large amount of work, both physical and nervous. She consulted Dr. S. G. Webber and one or two other leading practitioners in regard to her headaches, but without avail. The suffering from the headaches increased correspondingly with the development of the fibroid.

In March, 1887, the fibroid had enlarged the whole uterus to a size corresponding to the gravid uterus at the third month. I again dilated the uterine canal, with the hope that the fibroid had become more submucous and that I might be able to enucleate it; but it was found that it had not changed its position relatively to the uterus.

By this time the headaches had become so frequent and severe that it was telling in a marked degree on the nervous strength of the patient as well as upon her general health. For two years before this period she was obliged to use morphia subcutaneously at the times of such headaches as the only means of relief, and this enabled her to keep about her work except for one day of each attack. The headaches did not come with perfect regularity, although she seldom escaped a menstrual period without one either just before or just after the flow; she would be subject to one or two attacks also between times. Nothing seemed to have any effect but the morphia, which was always administered subcutaneously by a physician. The various currents of electricity, massage, heat and cold, various drugs (almost without number) were all tried in turn, but without effect.

The patient was at this time forty-six years of age, and might ordinarily soon expect the menopause, but inquiry elicited the fact that her family almost without exception went to fifty-two or over, before the cessation of menstruation. It was therefore decided to remove the uterine appendages as a means of causing the atrophy of the fibroid, in the hopes that by the resulting change the headaches would be beneficially affected. The operation was successfully performed in May, 1887. There was nothing of importance to characterize either the operation or the recovery from it; all the organs removed looked perfectly healthy. In questioning her a few days since in regard to the immediate results of the operation, she mentioned the fact of which I had forgotten to speak, that is, the sense of aching, fullness and bearing down in the rectum which had been quite troublesome for about two years immediately before the operation, and which was never felt after the removal of the uterine appendages.

In regard to the headaches, it was a full year from the time of the operation before any good result was noticed. After the expiration of this time, however, the severity of the headaches diminished correspondingly with the atrophy of the fibroid and the uterus. One and one-half years after the operation the fibroid had diminished one-half. Three years after the removal of the uterine appendages the most careful examination could not detect any enlargement of the uterus; in fact, it was less than normal in size, and was in good position. For two years after the operation she was occasionally obliged to resort to morphia, to enable her to keep about her work. For the past five years she has not used it. She tells me that she still has a headache once in two to four months, but is not now obliged to give up to it, and that in its severity it is similar to the premonitory symptoms which she formerly suffered, but that there it stops and passes away with a night's rest. She considers herself well; and from my knowledge of the physical and nervous strain she has endured for the past four years, I should certainly say she is in a better state of health than most of us. As a summary of the foregoing I would offer the following:

(1) Disease of the ovaries or Fallopian tubes is sometimes an unrecognized cause of nervous disease.

(2) The adhesions resulting from attacks of localized pelvic peritonitis is a not infrequent source of nervous disease, either from the presence of the pseudo-membranes in themselves or from the interference

which they offer to the functional activity of the organs involved.

(3) The extent or form of the pelvic disease is no indication of the character or degree of the resulting nervous manifestation.

(4) A most thorough pelvic examination should be made with the aid of an anesthetic, in every *obscure* case of nervous disease in a woman, occurring during the age of menstrual activity.

(5) Some forms of uterine disease may occasion an amount of nervous disturbance, which may require the removal of the healthy Fallopian tubes and ovaries, as the simplest and safest means of cure.

## A CLINICAL AND EXPERIMENTAL STUDY OF THE LEUCOCYTOSIS OF DIPHTHERIA.*

BY JOHN LOVETT MORSE, M.D.

A GREAT deal of work has been done during the last few years on the subject of leucocytosis, especially in acute diseases. Diphtheria, however, has been rather neglected. As it is an acute disease with marked constitutional symptoms due to the absorption of the toxic products of bacterial growth, a leucocytosis is to be expected. The observations hitherto reported have shown this to a marked degree.

Bouchut and Dubroisay[1] in 1877 made repeated examinations of the blood by Hayem's method, in 84 children sick with diphtheria, and obtained 4,305,000 as the mean of 93 counts of the red corpuscles; that is to say, a moderate diminution, which was the greater the severer the sickness and the higher the fever. The white cells were, in the average of 93 counts, increased to 26,824, making the ratio of white to red equal 1 to 160. Bouchut gives the following summary regarding the frequency of the occurrence of the various numbers. The white corpuscles amounted to:

| | |
|---|---|
| 0 to 5,000 | in 1 case |
| 5,000 to 10,000 | in 11 cases |
| 10,000 to 20,000 | in 28 cases |
| 20,000 to 30,000 | in 19 cases |
| 30,000 to 40,000 | in 15 cases |
| 40,000 to 50,000 | in 7 cases |
| 50,000 to 60,000 | in 9 cases |
| 60,000 to 100,000 | once in every 10 cases |

The very high grade of leucocytosis reported by these observers seems almost incredible, but is probably to be explained by the fact that they used Hayem's apparatus, which does not compare in accuracy with the Thoma-Zeiss. It is also possible that owing to the lack of bacteriological examinations, there may have been some errors in diagnosis.

In a later communication Bouchut[2] reports the results of 177 observations in severe "septicemic diphtheria." He found an "acute leucemic" condition of the blood, which increased with the severity of the disease and diminished again with an improvement. He did not find this marked leucocytosis in the lighter cases, however. Hence he considers the examination of the blood as regards the number of the white corpuscles as of importance for diagnosis. No differential count of the white corpuscles was made in these cases, of course.

The only other examination of the blood in diphtheria which I have been able to find reported in an extended search through the literature of leucocytosis, is one by Reinert.[3] He studied one case in a twenty-four-year-old girl, where a blood examination was made, on account of an ulcer of the stomach, before the attack of diphtheria. His results were as follows:

11, xii, 3 P. M. Red, 4,772,000.
13, xii. Patient sickened with diphtheria with moderate fever.
16, xii, 3.30 P. M. Red, 5,050,000; white, 5,763; white to red as 1 to 870.
19, xii, 3.30 P. M. Second day after cessation of fever. Red, 4,398,000.
19, xii, 4.30 P. M. Red, 4,732,000; white, 7,700; white to red as 1 to 610.

That is, a slight increase of the colored elements was observed during the fever period, "which may be easily explained by the diminished ingestion of food and drink." There was little or no increase in the leucocytes.

As the results hitherto obtained were rather surprising and lacked confirmation, there seemed to be room for further investigation. Moreover, many points had not been studied, as the character of the leucocytosis, its influence on prognosis, and its relation to the membrane, glands, and complications. Through the kindness of Drs. Buckingham and Folsom I have been enabled to examine the blood of 30 cases in the diphtheria ward of the Boston City Hospital. Owing to the lack of time, in but one case was more than a single examination made. The presence of the Klebs-Löffler bacillus had been previously demonstrated in all of them, and none of them were complicated by other diseases, acute or chronic. The effect of the symbiosis with other bacteria was not investigated.

The blood was in every case taken from the lobe of the ear and examined with a Thoma-Zeiss apparatus. It was diluted 1 to 200 with a three-per-cent salt solution colored with methylene-blue, and the corpuscles in one cubic millimetre counted. Cover-slips were in all cases made at the same time, hardened by heat or benzine, and stained with Ehrlich's "triple-stain." A differential count of from 300 to 500 white corpuscles was then made, the classification recommended by Ehrlich being used. As far as possible, the blood was taken at the same time of day and between three and four hours after food. The condensed results of my work are appended in the accompanying table, which is arranged according to the day of the disease.

It is evident from the above table that diphtheria is accompanied by a very marked hyperleucocytosis, larger even than that found in pneumonia. This has become well marked by the third day, and is probably present earlier. In a general way it increases as the disease progresses, is greatest at the height of the disease, diminishes during convalescence, and disappears with or soon after the membrane. It also in a general way corresponds with the amount of membrane, varying with it directly. There are notable exceptions to this rule, however, as in Case VII, where the throat was full of membrane and only 8,000 white corpuscles were found, and in Case V, where there were 42,000, but only a moderate amount of membrane. There seems to be no evident connection between the glandular enlargement and the increase in white corpuscles. It is noticeable, however, that the fatal "septic" cases with greatly enlarged glands all showed a very marked hyperleucocytosis. Some of the mild cases, nevertheless, with little or no enlargement of the glands, showed just as much. The condition of the lungs and kidneys apparently had no influence in determining the number of white cells. It thus becomes evident that the hyperleucocytosis is not due to any symptom

* A paper to which was awarded the First Lyman Prize for the year 1894. This paper will appear in the Medical and Surgical Reports of the Boston City Hospital, Sixth Series.

| No. | Age. | Day of Disease. | Hours since Food. | Temperature. | Membrane. | Glands. | Lungs. | Albumin. | Condition. | Result. | Remarks. | Red. | White. | Ratio. | Small Lymphocytes. | Large Lymphocytes, Transition Forms. | Polynuclear Neutrophiles. | Eosinophiles. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23 | 3 | 2 | N. | Slight; mostly nasal | None | Normal | None | Good | Well | | 5,786,000 | 9,000 | 1 to 643 | 15% | 4% | 76% | 5% |
| 2 | 12 | 3 | 4 | 100° | Moderate | Small | Normal | None | Very good | Well | | 4,674,000 | 18,000 | 1 to 260 | 8 | 5 | 85 | 2 |
| 3 | 9 | 3 | 4 | N. | None; nasal | Small | Normal | None | Very good | Well | | 4,640,000 | 14,000 | 1 to 331 | 10 | 3 | 79 | 8 |
| 4 | 29 | 3 | 3½ | 99° | Moderate | Small | Normal | None | Very good | Well | Height of disease | 5,564,000 | 16,000 | 1 to 348 | 16 | 4 | 79 | 1 |
| 5 | 27 | 3 | 1 | 100.5° | Moderate | None | Normal | None | Good | Well | Height of disease | 5,618,000 | 42,000 | 1 to 134 | 15 | 6 | 78 | 1 |
| 6 | 27 | 5 | 2 | 99° | Very little | None | Normal | None | Good | Well | Convalescing | 5,262,000 | 17,000 | 1 to 303 | 17 | 6 | 76 | 1 |
| 7 | 13 | 5 | 4½ | 100.4° | Much | Large | Normal | ⅛% | Good | Well | | 5,596,000 | 8,000 | 1 to 699 | 25 | 5 | 69 | 1 |
| 8 | 4½ | 5 | 3½ | N. | Moderate | Moderate | Normal | Slight trace | Fair | Well | | 5,200,000 | 20,000 | 1 to 260 | 11 | 6 | 80 | 3 |
| 9 | 8 | 5 | Eating | 99° | Moderate | Small | Normal | None | Good | Well | | 5,044,000 | 28,000 | 1 to 180 | 11 | 4 | 83 | 2 |
| 10 | 15 | 5 | 4 | 100.4° | Much | Large | Bronchitis | ⅛% | Fair | Died in 4 days | Became septic | 5,752,000 | 28,000 | 1 to 205 | 11 | 4 | 85 | 0 |
| 11 | 30 | 6 | 4 | 100.4° | Little | Slight | Normal | None | Good | Well | Convales'g. Anemic | 3,312,000 | 20,000 | 1 to 165 | 9 | 4 | 84 | 3 |
| 12 | 3 | 6 | Not eating | 99° | Very much | Very large | Broncho-pneumonia | Trace | Moribund | Died in 5 hrs. | Septic. Throat and nose "rotten" | 5,728,000 | 40,000 | 1 to 143 | 10 | 6 | 82 | 2 |
| 13 | 12 | 6 | 4½ | 99.8° | Little | Small | Normal | None | Good | Well | Cardiac souffle | 5,196,000 | 24,000 | 1 to 216 | 17 | 4 | 75 | 4 |
| 14 | 3½ | 6 | ½ | N. | Much | Considerable | Slight bronchitis | None | Fair | Well | Obstruction | 5,224,000 | 48,000 | 1 to 109 | 4 | 2 | 94 | 0 |
| 15 | 5½ | 6 | Vomiting | 99° | Much | Very large | Normal | None | Moribund | Died in 4 hrs. | Septic. Hemorrhagic | 5,300,000 | 20,000 | 1 to 265 | 8 | 2 | 90 | 0 |
| 16 | 4 | 6 | 2½ | N. | Much | Small | Normal | None | Fair | Well | Slight obstruction | 5,164,000 | 32,000 | 1 to 161 | 10 | 9 | 81 | 0 |
| 17 | 9 | 6 | 1½ | 101.2° | Much | Very large | Bronchitis | Slight trace | Bad | Died in 22 hrs. | Septic | 4,910,000 | 42,000 | 1 to 117 | 8 | 3 | 88 | 1 |
| 18 | 32 | 7 | 4 | 102.4° | Much | Small | Bronchitis | None | Good | Well | | 4,656,000 | 20,000 | 1 to 233 | 8 | 4 | 88 | 0 |
| 19 | 2 | 7 | 4 | 97° | Slight | Small | Slight bronchitis | None | Good | Well | | 5,704,000 | 12,000 | 1 to 475 | 30 | 7 | 59 | 4 |
| 20 | 8 | 7 | 3 | N. | Moderate | Moderate | Normal | Slight trace | Good | Well | Convalescing | 5,412,000 | 20,000 | 1 to 270 | 9 | 7 | 80 | 4 |
| 21 | 27 | 8 | 4½ | N. | Much | Slight | Normal | ⅛ to ¼% | Fair | Well | | 6,860,000 | 40,000 | 1 to 171 | 9 | 3 | 84 | 4 |
| 22 | 22 | 8 | 2½ | N. | Much | Small | Normal | ⅛ to ¼% | Good | Well | | 6,068,000 | 20,000 | 1 to 303 | 12 | 4 | 83 | 1 |
| 23 | 9 | 8 | ½ | 99° | Moderate | Small | Normal | None | Good | Well | | 4,484,000 | 24,000 | 1 to 187 | 16 | 5 | 74 | 5 |
| 24 | 30 | 9 | 3 | 99.4° | Very little | None | Normal | None | Good | Well | | 5,138,000 | 12,000 | 1 to 428 | 16 | 7 | 75 | 2 |
| 25 | 7 | 10 | 4½ | N. | None for 2 dys. | Very small | Normal | None | Good | Well | Convales'g. Still K. L. | 4,108,000 | 8,000 | 1 to 513 | 19 | 4 | 75 | 2 |
| 26 | 7½ | 10 | 3 | 100° | Little | Moderate | Normal | None | Good | Well | Convalescing | 4,770,000 | 10,000 | 1 to 477 | 16 | 6 | 77 | 1 |
| 27 | 24 | 11 | 4 | N. | Slight | Slight | Normal | None | Good | Well | Convalescing | 5,012,000 | 12,000 | 1 to 417 | 23 | 6 | 68 | 3 |
| 28 | 25 | 13 | 3 | N. | Little | Small | Normal | None | Good | Well | Convalescing | 5,625,005 | 15,000 | 1 to 375 | 30 | 8 | 59 | 3 |
| 29 | 24 | 14 | 4 | N. | Little | None | Normal | None | Good | Well | Convalescing. Memb. kept up by $H_2O_2$ | 5,240,000 | 16,000 | 1 to 327 | 10 | 3 | 85 | 2 |
| 30 | 23 | 21 | 4 | N. | None for 2 dys. | Small | Normal | None | Good | Well | Convales'g. Still K. L. | 4,608,000 | 8,000 | 1 to 516 | 32 | 6 | 58 | 4 |

or combination of symptoms, but is the result of some general influence which is present in every case. This influence can be no other than that of the toxines absorbed. Whether the individual variation is due to the amount of absorption, to some difference in the virulence of the toxine absorbed, or to some difference in the resistant powers of the person attacked, must, in the present state of our knowledge, be left unanswered. In the great majority of cases the increase was in the polynuclear neutrophiles, that is, the typical leucocytosis. In several, however, the proportions closely approached the normal. In a few, chiefly convalescent cases, there seemed to be a lymphocytosis; this, too, in cases without much external glandular enlargement.

The number of the erythrocytes was, with one or two exceptions, always somewhat above normal. The only patient in which they were diminished was a woman, evidently subject to a chronic anemia. I am unable to give any explanation of this increase.

This study establishes the fact pretty clearly, I think, that the examination of the blood in diphtheria as to leucocytosis is of no value in prognosis. For, although fatal cases have a pretty marked one, yet it is almost always present, and often very pronounced, even in the mildest cases.

Having thus established the existence of a leucocytosis in diphtheria, I will now take up briefly the various views with regard to the origin of leucocytosis in general, and later detail the results of some experiments in animals which I have made in this connection. I will take up the theory which seems to me most probable last, that of Goldscheider, comparing his views with the others in turn and quoting largely from him.

Von Limbeck [4] considers that leucocytosis stands in the closest connection with the formation of exudate, and considers it as entirely secondary to the exudation. He found that when the toxic products of microorganisms were introduced into animals a reaction followed which corresponded to the size of the dose; that neither blood nor other tissues reacted to small amounts; and that after larger, a local reaction and proportionate hyperleucocytosis occurred. A much more significant reaction of the tissues and a greater hyperleucocytosis followed when living micrococci were introduced. He concludes that the hyperleucocytosis arises from the development or presence of bacterial products in the organism, which have a further action on the white cells and bring them into the circulation. He does not explain what this action is, and expresses no opinion as to whether those cells are new-formed or merely driven out of the blood-forming organs. He nevertheless calls attention to chemotaxic action as probably playing a rôle in the process.

His theory must be considered as of little value, however, as he did not recognize the hypoleucocytosis which has been found by other observers. His failure to find this was undoubtedly because he made no examination under forty-eight hours. Moreover, other investigators, notably Goldscheider and Jacob, have produced a marked hyperleucocytosis by the subcutaneous injection of organic extracts without producing any swelling or exudate. These experiments evidently destroy the foundations of von Limbeck's theory.

Römer [6] as the result of his own and Buchner's [7] work concludes that the destructive products of dead bacteria or other cell-life, when introduced into the circulation, exert a direct formative action on the white cells, causing a new formation of leucocytes, exclusively in the venous blood. This increase arises through amitosis. He also claims that the cells found increased may in part be already present in the blood-making organs and be brought into the circulation by chemotaxic action. Rieder [8] and Löwit completely contradict his experiments and arguments while Goldscheider and Jacob find no difference in the blood of the veins and arteries and show conclusively that after a short time there cannot be. Their experiments show that there is no such thing as hyperleucocytosis in the veins alone, which could only occur as the result of a direct new formation of white cells in the circulating blood. Both Löwit and Goldscheider and Jacob deny that this takes place. They both find immediately after the hypoleucocytosis almost exclusively mononuclear cells. Gradually, however, during the course of the hyperleucocytosis, a decided preponderance of polynuclear arises. Goldscheider and Jacob also lay much stress on the fact that most of these cells are eosinophile, and hence consider that they are not entirely formed from the new mononuclear but are partly old cells which were lying in the bone-marrow ready for extrusion and have been brought into the circulation in increased numbers as the result of the chemical irritation of the injected material.

Löwit considers hyperleucocytosis to be entirely independent of chemotaxis, and believes that it is due solely to a previous impoverishment of the blood in leucocytes. He also believes that a hyperleucocytosis occurs every time after a part of the leucocytes have perished, because an increased influx of young leucocytes out of the blood-forming organs is thereby brought on, that is, hyperleucocytosis follows leucolysis, which may result from the presence of certain substances, as bacteriological products, in the blood. He found that in all cases immediately after the injection there was a decided diminution in the leucocytes, but that then a gradual increase took place, which developed as much more intensely as the previous diminution was great. Thus, according to Löwit, hypoleucocytosis and hyperleucocytosis are two processes which are inseparably connected, the second occurring as the result of the first and being impossible without it. Goldscheider and Jacob were able, however, by the use of repeated small injections, to produce a primary hyperleucocytosis. They also showed, by autopsies, on animals killed during the stage of hypoleucocytosis that the leucocytes were accumulated in the capillaries of the lungs and not destroyed. Löwit denies chemotaxis any part in the production of leucocytosis but recognizes, however, that he cannot explain how leucolysis causes such a marked discharge of young cells from the blood-forming organs. It is difficult to see on what grounds he can deny the influence of chemotaxic action upon this process.

Schultz [10] believes that in all conditions which are considered as hypoleucocytosis and hyperleucocytosis the white cells are neither diminished nor increased, but are merely distributed differently in the vessels. According to his experiments with protein and other injections there is neither a destruction of leucocytes — Löwit's leucolysis — nor an absolute increase of the leucocytes from the blood-forming organs afterward. That is, he believes that the hypoleucocytosis is merely due to the accumulation of the white cells in the central vessels with a corresponding diminution of those

in the peripheral, the hyperleucocytosis being due to the reversal of these conditions, the cells simply being differently distributed. Goldscheider and Jacob, however, found that the cells which accumulated in the capillaries of the lungs remained there, even increasing in number during the early stage of the hyperleucocytosis, thus showing that there is no shifting of the cells but an absolute increase. This increase is sufficient to counterbalance the first loss of cells from the general circulation and still far exceed the number normally there.

Goldscheider and Jacob[8] have performed a very large number of very careful injection experiments on rabbits, using extracts of various organs and bacterial products. Many of their results have been already noted. They made counts immediately after injection and then at frequent intervals. After injections into veins they found in one case a marked hypoleucocytosis in twenty-five seconds. On the average the hypoleucocytosis reached its minimum in five or ten minutes; then the number began to increase, the maximum hyperleucocytosis usually being reached in five hours, but often only after twelve to eighteen hours; the normal was again reached in twenty-four to forty-eight hours. After subcutaneous injections the results were the same, but slower in making their appearance, the minimum appearing in three or four hours, the earliest maximum in fourteen to eighteen hours. Autopsies on animals killed during hypoleucocytosis showed the capillaries of the lungs to be full of leucocytes; there were as many, or more, in them during the hyperleucocytosis. They also succeeded by giving repeated small injections, in producing a primary hyperleucocytosis. In other cases, by using very large doses, they caused death while the hypoleucocytosis still persisted.

Müller,[11] Everard, DeMoor and Massart,[12] and Canthack [13] have obtained similar results as regards hypoleucocytosis and hyperleucocytosis. Everard sums up his work as follows: The injection of bacterial cultures, living or dead, results first in a diminution of the circulating leucocytes, especially of those with multiple nuclei and granular protoplasm. When the animal survives the infection, the stage of hypoleucocytosis is followed by one during which the polynuclear granular cells are very abundant; then the blood resumes its normal characteristics. The hyperleucocytosis is not typical in cases which succumb to the injection, or may be entirely wanting in those which die quickly. Sometimes, when the infection is prolonged, it is replaced by a series of oscillations. Canthack made hourly examination of the blood after the injection of filtered cultures of vibrio Metchnikovi. He found, at first, during the rapid rise of temperature a marked diminution of the leucocytes which persisted until the pyrexia passed its climax. Four to six hours after the number was enormously increased, reached its height at the ninth hour, but persisted, though to a less degree, for forty-eight or seventy-two hours, or even longer.

As the result of their experiments, Goldscheider and Jacob conclude that the phenomena of leucocytosis are due to chemotaxic action. The first action is a repellent one on the leucocytes, and they are arrested and held in the lung capillaries, where they remain. The second is irritative — attractive — on the blood-forming organs, and the white cells already formed there are set free and an increased number of new ones formed and also set free. Some of these also are arrested in the lungs as the result of continued repellent action. There is no instant leucolysis, and the process is something more than a mere changing of leucocytes, without increase, from the inner vessels to the outer, and *vice versa*. They explain the hyperleucocytosis without hypoleucocytosis which occurs after small doses by the fact that the small quantity, being distributed throughout the whole circulating fluid is not sufficiently concentrated to exert an energetic enough repellent action on the leucocytes to cause much retention in the capillaries. If, however, such small doses are repeated at certain intervals, the positive, or attractive, influence gradually increases, finally becoming far superior to the negative influence which is exerted by these small doses. Thus the equilibrium between the two processes is finally destroyed in favor of the first, the result being a decided hyperleucocytosis. They explain death during the hypoleucocytosis by the continuation of the repellent action, the irritative action being so strong as to paralyze the blood-forming organs.

Several difficulties confront us when we attempt to compare the leucocytosis in man with that observed in animals. We naturally cannot subject a sick man to so frequent blood-examinations as an animal; and as the disease often extends over days and weeks, important changes may easily escape observation. Moreover, we almost never get a blood-examination in the early stage of a disease. However, the vast number of blood-examinations which have been made clinically during the past few years, have given us a general idea of the leucocytosis in most diseases. A hyperleucocytosis has been demonstrated in most acute infectious diseases, especially febrile.

A constant diminution has been found only in typhoid, malaria and puerperal sepsis. There is said to be a decided hypoleucocytosis in the acute infectious diseases where the patients die within a few days. This is certainly the case in pneumonia. I have not observed it in diphtheria, the only case which had a normal number of white cells recovering.

It is possible that there may be a primary hypoleucocytosis in man, but, as already noted, the patient is almost never seen early enough to demonstate this, if it exists.

It has been shown above, however, that it is possible experimentally to produce a primary hyperleucocytosis. Now the conditions in man are essentially the same as those in the experiments made regarding this point. For the ordinary method of infection is not by the sudden entrance of a large amount of toxic substances into the circulation, but by the continuous absorption of small quantities. Hence we expect a hyperleucocytosis without a previous hypoleucocytosis. If the infection be extremely sudden and severe and rapidly fatal, we have a condition analogous to that in animals killed by a very large dose during hypoleucocytosis. That is to say, the toxic material is sufficiently concentrated to paralyze the blood-forming organs. This would explain the fatal cases of pneumonia with no increase of white cells. Thus it is evident that the chemotaxic theory explains satisfactorily the leucocytosis found in man as well as in animals.

A series of experiments was made on animals to determine primarily whether the hyperleucocytosis observed clinically in diphtheria was due to the Kleba-

Löffler bacillus and its toxines or to associated bacteria. As far as I know, these are the first injection experiments ever made on animals with this bacillus or its products. At the same time a careful study of the leucocytosis was made, and the work of previous investigators in this line gone over. Autopsies were made in all cases and the organs examined.

Rabbits were used, as their ears naturally fit them for intravenous injections and the blood is easily obtained. The normal number of white corpuscles averages a little higher than in man. As there is a considerable variation in individual animals a count was made in every case before beginning an experiment. Rabbits offer the further advantage that they present no digestion leucocytosis.[10] The blood was always taken from the ear and diluted (1 to 200) with a three-per-cent. salt solution colored with methylene blue. The Thoma-Zeiss instrument was used, and the corpuscles in at least fifteen cubic millimetres counted. The differential counts were of 500 white cells hardened with alcohol and ether and stained with Ehrlich's "triple-stain." The toxines used were from a filtered bouillon culture which had been twenty-three days in the thermostat, and was preserved by the addition of one-half per cent. of carbolic acid.

I wish here to acknowledge my indebtedness to Dr. J. H. Wright of the Harvard Medical School for the use of the toxine solution, and to thank both him and Drs. Councilman and Mallory for valuable advice and assistance in my work.

(*To be continued.*)

## Clinical Department.

### OBSERVATIONS UPON CASES HAVING THE SO-CALLED "TÂCHES BLEUÂTRES" IN THE BOSTON CITY HOSPITAL.[1]

BY VINCENT Y. BOWDITCH, M.D.,
*Assistant Visiting Physician.*

SYNONYMS: tâches bleues, tâches ombrées, tâches ardoisées, tâches phthiriaques, maculæ ceruleæ, macules cyaniques, peliома typhosum.

ALTHOUGH reference to the literature upon this subject seems to indicate that the presence of these *tâches bleuâtres* is of little diagnostic significance in any case, yet their precise origin seems still to be a matter of some doubt, and hence a collection of the various theories upon the subject is of interest.

At one time these bluish spots, varying in diameter from the size of a pin-head to that of a fifty-cent piece, not disappearing upon pressure, and most frequently found upon the abdomen and flanks, during the course of typhoid fever, were supposed to be due to that disease. Slight allusion is made to them in Flint's "Practice of Medicine," under the head of Typhoid Fever, but no suggestion is made as to their causation. Trousseau had noticed them also in typhoid fever. Other observers found that the spots were not confined to typhoid, but noticed them in various other diseases: yellow fever, pleurisy, pneumonia, gonorrhea, and also in non-febrile diseases.

In 1868 Moursou, a pupil of Falot, and physician in the French navy, first advanced the idea that these spots were not the result of any one disease, but were due to the presence of pediculi pubis. Later, in quite an elaborate and careful paper, he gave his proofs of this theory, and as a result of his observations, makes the following statements:

Over 250 cases had been observed in every variety of climate and in diverse diseases, mild and grave. Delicacy of the skin, a blond complexion, and a phlegmatic temperament, he noticed, were the most usual accompaniments of the spots. He asserts that every time he found these spots the pediculi pubis or their ova were also present. He noticed, moreover, in healthy men who had had the parasitic infection for at least twenty days, that the majority of them had the *tâches bleues.*

Moursou's observations were so carefully made that one is certainly impressed by the probable truth of his theory, which has been substantiated by subsequent observers, namely, O. Simon, Gibies, Gebbin, notably by Duquet and Mallet. The former injected under the skin a paste made with the bruised pediculi and water, and spots similar to the *tâches bleuâtres* made their appearance. Mallet believes that the color is caused by the secretion contained in the thorax of the pediculus opposite the anterior pair of legs where there are two pairs of salivary glands, the contents of which are conveyed under the epidermis through the "haustellum" or sucking apparatus of the insect.

Most of the modern text-books in speaking of the *tâches bleues* seem to accept the theory of Moursou, notably Ziemssen, Strümpell, and Osler, although Osler evidently feels some doubt as to whether the mere presence of the pediculi is the cause of the spots, or whether there is not some accompanying condition of the patient which favors their appearance. He says: "If really caused by these parasites, it is difficult to understand why they should be present only with fevers," which implies that he has not met with them in non-febrile cases. An objection to the theory of Moursou was brought forward by some from the fact that the *tâches bleues* are sometimes found upon people of undoubted cleanliness of body, and of the highest moral character; an objection which would not in itself seem to be valid, because of the undoubted fact that such people have often by accidental means become infested by these insects, the presence of which can have been easily overlooked by the examiner.

In an article entitled "Blue Spots in Typhoid Fever," in the New York *Medical Journal* of October 20, 1894, Dr. A. V. M. Anderson, of Melbourne, Australia, is quoted. In the Australian *Medical Journal* of August 20, 1894, he writes that the "rash" is one of the least commonly seen in typhoid fever, and probably escapes observation on account of indistinctness. He found them in eight out of 915 cases. In five they were present upon entrance, the duration varying from five to fifteen days; in others they appeared on the fifteenth, twenty-first, and forty-second days, and disappeared usually in a week or ten days.

Dr. Anderson could find no evidence of the pediculi pubis, and had not noticed them on patients with other diseases. They were detected over the course of the subcutaneous veins, and would seem to indicate, according to Dr. Anderson, that they are due to an altered condition of the blood, which shows itself in the tendency to epistaxis in so many cases of typhoid. He regards them as of little clinical significance.

Still another theory is advanced by Professor Revilliod, of Geneva, for the purport of which I am in-

[1] This paper will appear in the Boston City Hospital Reports, Sixth Series.

debted to Dr. C. G. Cumston, who informs me that in a clinical lecture upon the subject, Revilliod stated that he believed the spots to be due to the *excrement* of the pediculus pubis, which he believes to be an insect of very cleanly habits, and that during the night he leaves his usual seat at the root of the hair, and deposits his feces in adjacent portions of the body. I have been unable, unfortunately, to obtain Revilliod's proofs either for this action on the part of the insect, or for his theory of the excrementitious nature of the spots; but it serves to show the diversity of opinion which still exists upon the subject.

Another theory which has been advanced is, that this insect has a special liking for the bodies of patients suffering certain diseases; but although they certainly seem to have been noticed more frequently in typhoid fever than elsewhere, as yet no substantial proof has been given that this fact is anything more than mere coincidence.

During my service in the last two years I have come across nine cases in which the *tâches bleuâtres* were present, and in every case the presence of pediculi pubis was proven. Three of these cases were typhoids, which recovered, and the others were one each of phthisis, jaundice from gastro-duodenitis, acute bronchitis, intermittent fever, hysteria, and the one which showed the most numerous spots being a fatal case of cerebral meningitis following an otitis media. Of these cases seven were males and two were females.

In Dr. George B. Shattuck's service this year up to the present, eight cases are recorded in which the blue spots were noticed, but unfortunately no record is made as to whether the pediculi were also present or not. In two which I examined I was unable to find the insect by most careful search, but in one of these cases I only made the examination on the day of discharge of the patient, who had been ill several weeks with typhoid; and in the other the patient had been transferred from the surgical ward as a possible typhoid case, having entered with suspected appendicitis, so that sufficient time had elapsed for the removal of possible pediculi before I saw the patients. The other cases, six in number, were all typhoids, which also recovered.

Judging by the frequency with which pediculi were found to be present in my cases, I can but feel that they would have been found in at least the majority of the other cases had special attention been directed to this point earlier.

Although from such a small number of cases nothing can be proven absolutely, yet they at least show that the spots can appear in quite a variety of diseases, and are not confined to either severe or mild forms of disease.

From this comparatively slight experience I am led to accept the view of Moursou as the correct one.

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## Medical Progress.

### RECENT PROGRESS IN LEGAL MEDICINE.

BY F. W. DRAPER, M.D.

#### CADAVERIC RIGIDITY.

TISSOT has formulated some new views concerning post-mortem rigidity which differ from the theories previously promulgated by physiologists.[1] Most authorities have accepted the explanation of this phenomenon offered by Brücke and Kühne, that it is due to a chemical change, the coagulation of myosine; while others, following Ingsten and Brown-Séquard, regard it as a final contraction of the muscles and thus a physiological fact. Tissot's conclusions are as follows: (1) The rigid muscles can very often be electrically excited for a variable period after the advent of rigidity and even when it is completely developed. This persistence of excitability is almost constant in cases in which rigor mortis has supervened with rapidity. (2) The rigid muscles which have lost their electrical excitability often preserve their mechanical contractility for a considerable time. (3) The rigid muscles which have lost both their electrical and their mechanical excitability can still be excited to contraction by chemical stimuli. Contrary to the statements of several physiologists, the excitability of muscles to chemical reagents (chloroform, ammonia, ether, etc.) persists much longer than the mechanical contractility and is always the last to be lost. (4) Whilst the electrical excitability progressively diminishes, the excitability of muscles under certain reagents increases and reaches its maximum when that under electricity has disappeared and at the moment when the muscle becomes rigid. With some reagents, however, the reverse occurs and the diminution of the excitability is progressive. (5) Tetanized and fatigued muscles present an exaggerated sensibility to chemical reagents in the same manner as rigid muscles. This reaction has also been observed in muscles whose vessels have been ligatured for some time, and in muscles which have been submitted to the action of air, heat, drying effects, etc. (6) Contraction produced in rigid muscles by the action of some excitant, even if it be only a limited exposure to the vapors of chloroform or ammonia, is accompanied by the production of a "current of action" in the muscular fibres; it is also accompanied by the disengagement of heat, as in the contraction of living muscle. (7) Rigid muscles, when exposed to the air, give off carbonic acid and absorb

[1] Lancet, May 26, 1894, p. 1320.

oxygen. (8) In his experiments, Tissot was able only twice to cause the onset of rigidity in the gastrocnemius of a frog by a single strong electric shock, just before the moment when the muscle would have lost its electric excitability.

### THE COURSE AND EFFECTS OF BULLETS.

Victor Horsley recently presented an instructive paper before the Royal Institution, on the effects of modern small projectiles.[3] He said: "Some people seem to think that a small bullet at a very high speed will pierce the tissues of the body without doing much general damage. This, however, is erroneous. The bullet carries forward with it particles of the substance through which it is passing and thus practically becomes a larger projectile. If a bullet be fired through a book, it cuts out disks of increasing diameter as it traverses the pages. Hence, too, it is plain that the greater the sectional area, the greater the damage. As to the heating of the bullet, it has certainly been much exaggerated; and its effects in this direction, if indeed it has any, may be safely neglected. The physical constitution of a body has a most important bearing upon the behavior of a bullet entering it. Why does a bullet of a certain size and travelling at a certain rate, simply perforate some substances, such as wood or iron, while in others, such as clay, brain, etc., it exercises a bursting and disruptive action? The answer is quite simple: the destructive effects vary directly as the viscosity of the body. This was established by some remarkable researches on the effects of bullets on soft tissues made by Huguier, after he had observed the results of the wounds inflicted in the fighting in Paris, in 1848. He suggested, from observations made on certain dead organs, such as lung, that the reason of the great lateral disturbance was that the tissues contained water in large quantity; and that the energy of the moving projectile, being imparted to the particles of water, caused the dispersion of these in a hydrodynamic fashion. This suggestion was shown to be correct by Kocher in 1874–76. If a shot be fired through two tin canisters of equal size, the one full of dry lint and the other of wet, in will simply perforate the former, but will cause the latter to burst explosively. In the same way, shots fired into dough have more or less disruptive effects according to the percentage of water in the dough; and, in general, the more fluid the substance, the greater the destruction. Now, in life the brain is a more or less fluid body; hence, a shot fired into the skull must have a disruptive effect and tend to burst it."

### ABORTION INDUCED INSTRUMENTALLY BY THE WOMAN HERSELF.

Goenner[2] reports a case of a woman, thirty-seven years old, who had given birth to four children at term, and induced an abortion, without assistance, three times. Believing herself to be pregnant, she inserted an elastic catheter into the vagina. The operation caused considerable pain, and on withdrawing the catheter some hemorrhage occurred. It was discovered that a part of the instrument remained behind. An attack of peritonitis followed, and abortion occurred five days after the use of the catheter. Six days later, during defecation, the patient was seized with severe pain in the lower part of the abdomen and in the ileocecal region. No trace of the retained piece of catheter could be found by palpation and operative procedures were considered, when the missing fragment was passed in a fecal discharge. The vagina did not present any punctured wound. The patient eventually recovered.

### RIGOR MORTIS IN A FETUS.

At a meeting of the Edinburgh Obstetrical Society, December 12, 1894,[4] Dr. Ballantyne presented notes on a case of cadaveric rigidity in the fetus. The mother had not felt any movement for two days previous to labor, which was premature at six and a half months. The fetus at birth had the left arm sharply bent at the elbow, and on attempting to straighten it there was marked resistance and the biceps became very prominent. A similar condition was present in the right leg, which was bent at the knee. Two hours later, resistance could still be felt, but all signs of rigidity had disappeared the next morning. The reporter of the case reviewed the literature on the subject and had collected records of twenty-five cases extending over a period of forty years.

### TENACITY OF VITALITY IN HUMAN SPERMATOZOA.

Various authorities state that zoosperms may continue to move in the fluids of the seminal tract after death and for an indefinite time; the periods stated vary from twenty-four to eighty-four hours. Outside the body the movements of the spermatozoa have been observed for seventy-two hours by Hofmann, and Montegazza has seen them active four days after their discharge, the temperature being favorable. A case is on record in Beale's *Archives* in which active spermatozoa were found in the mucus taken from the vagina of a little girl fourteen days after she had been violated. And Mr. Piersoll[5] has recently published observations showing that zoosperms kept at a temperature of 8.5° C. will continue to show movements for nine days.

### BULLET-WOUND OF THE BRAIN, WITH SURVIVAL FOR TWELVE DAYS.

Cases of perforating gun-shot wounds of the brain in which the missile was extracted during the life of the patient, from the side of the head opposite to the wound of entrance, are certainly rare; and such cases terminating in recovery are still more rare. Dr. Tefft of Springfield, Missouri, reports an instance of unusual interest, which, though not ending in full recovery, has some extraordinary features. A healthy boy, twelve years old, was shot at short range with a twenty-two calibre revolver. The ball penetrated the frontal bone, seven-eighths of an inch above the upper margin of the left orbit and one inch from the middle line. A Nélaton probe dropped by its own weight through the brain a distance of seven inches as the boy lay on his back, the progress of the instrument being checked by the inner table of the occipital bone. Under antiseptic precautions, a disk of bone was removed with the trephine from the occipital bone over the point believed to cover the posterior end of the cerebral lesion. The operator was rewarded by finding the bullet at a point an inch and a half below the exit wound in the brain, and imbedded in the sub-

[3] Medical Record, June 9, 1894, p. 731.
[2] Centralblatt f. Gynekologie, 1894, No. 3.; American Journal of Medical Sciences, May, 1894, p. 503.
[4] Lancet, December 29, 1894, p. 1541.
[5] Medical Record, May 19, 1894, p. 645.
[6] Loc. cit., April 21, 1894, p. 495.

stance of the brain at a depth of from half an inch to three-quarters. Before the operation the boy was unconscious and had bled freely. After the removal of the slug, whose weight was twenty-three grains, the patient regained consciousness, was intelligent, ate, drank, talked, recognized his friends, and took an interest in his surroundings. The special senses were not affected. There was no paralysis. On the eighth day the boy was restless; his temperature rose; his pulse increased; his pupils dilated; he became apathetic. Coma developed, and he died on the twelfth day after his injury. A partial post-mortem examination of the wounded part failed to reveal any suppuration — the track of the bullet was still open. The immediate cause of his death was not determined.

### THE PHYSICAL SIGNS OF VIRGINITY.

An editorial writer in the *British Medical Journal*[1] so clearly states the need of conservative judgment in discussing this topic, that his words will bear repeating as a caution against dogmatism. After introducing his subject with the declaration that "the doctrine has come down to us from venerable antiquity that the hymen is the sign of virginity; its laceration the proof of defloration; its presence or absence the test of the virtue of an unmarried woman," the writer concludes his paper with these words: "It is clearly of the greatest importance that medical witnesses should exercise much caution in giving evidence in cases where the chastity of a woman is called in doubt. The presence or absence of a hymen is a mere matter of fact; but whether the law cares to admit it or not, juries certainly accept the evidence of experts as expressing not only a fact but an opinion upon it. Although, then, it remains true that in a small number, comparatively a very small number of cases, the signs of virginity may persist after carnal intercourse, and although it may be impossible by any one sign or fixed criterion to say that a woman is a *virgo intacta*, still it is often possible for a medical man, taking all the circumstances into consideration, to form an opinion which may be very useful to a jury in arriving at a verdict upon a case. It is not merely a question of a hymen, but of its completeness, its position, its thinness and its apparent lacerability under the asserted conditions; and, also, it is to a certain extent a question of these conditions themselves. A persistence of hymen which would be no disproof of rape by an old or feeble man, might, in the mature judgment of an experienced surgeon, be quite incompatible with sexual intercourse with consent. It might, however, be far better were medical witnesses to be appointed either by the judge or by consent of both parties, so as to do away with even the appearance of conflict between them [the experts]. This, however, we fear is at present but a counsel of perfection."

LIFE INSURANCE OF CHILDREN. — The Memphis Board of Health has sent a communication to the Tennessee State Board of Health, calling for such action as will lead to legislation prohibiting the insurance of the lives of infants and children within the State, on the ground that the practice leads to criminal negligence of children, and is to that extent prejudicial to public health. — *North American Practitioner.*

[1] January 5, 1895, p. 27.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, December 10, 1894, DR. C. F. FOLSOM in the chair.

DR. W. H. BAKER read a paper on

### THE REMOVAL OF THE UTERINE APPENDAGES FOR NERVOUS DISEASE.[1]

DR. J. HOMANS: From the title of the paper that was sent to me I did not expect quite such a paper as Dr. Baker has given us. I thought that his paper was to be on the effect on the nervous system of removal of ovaries and tubes. I took up my cases this afternoon to look through and got quite interested in reading a number of them, and I hope you will be also if you are not too much bored.

My first case I did about twelve years ago for what was called hystero-epilepsy, menstrual insanity. A doctor who was a relative of the patient wrote me about the patient and we concluded to operate.

I would like to say that my experience has not been like Dr. Baker's. I have had one or two very brilliant cases, but I never remove healthy ovaries and tubes for nervous disorder without the sanction and the support of Dr. Cowles or some equally high authority in nervous diseases. I will simply say that I operated on this young lady March 22, 1883. I found after I had operated that she had been in the habit of taking much more morphia than I had supposed. At any rate the ovaries and tubes were removed and we found the uterus very small. There was improvement in this woman for over a year so that the outlook seemed quite hopeful, but as soon as she got able to do something, being rather brilliant of mind, she began to write for magazines, and got money and purchased morphia, and went back to the morphia habit. She died in 1890 of consumption, seven years after this operation. I was present at the autopsy. The limbs were scarred all over with marks of the subcutaneous syringe. I could not see that the operation had been of any benefit.

The second case I operated on was at the request of the late Dr. Goldsmith. The case was reported by him in the *American Journal of Insanity*, and was really a brilliant case and complete cure, as far as the girl could be cured. I will read a little about her life:

The doctor gives a long account of the biography of the patient, as to the causation of the insanity, and thinks an accessory cause was eroticism. He asked me to remove the ovaries, which I did at the Danvers Asylum. She recovered rapidly. Was never unwell afterwards and her pain in her right side was less. She came home at the end of two months, and was entirely free from any attacks of insanity afterwards. She came to me about a year later with her mother, and I raised a little money with which she got a pony and peddled berries, etc. She was very gentle when I saw her on several occasions. She went on with peddling, and a few years afterwards died suddenly (of apoplexy?). That, I think, is a brilliant case, and it seems as if the removal of the ovaries and tubes was the turning-point.

[1] See page 224 of the Journal.

The third case was an insane lady. I operated at the request of her doctor, and I do not think it made any difference one way or the other. She was just as crazy afterwards as before, and died of phthisis a year afterwards at the Worcester Asylum.

The fourth case was a married woman of thirty-six. Pain and tenderness in the left iliac region ever since she can remember. In 1884 went to the Adams Nervine Asylum. She could do nothing at all when I saw her. She was almost bedridden, and had terrible pains, troubles and sufferings. In consultation with Dr. Chamberlain of Lawrence, I removed the ovaries and tubes in August, 1885. She continued menstruating with more pain than before, and in 1890 was still menstruating, her condition being no better and no worse.

The fifth case was very much like the first, a morphine-taker, single, twenty-eight. I operated in November, 1885. Dr. Tenney had the care of this woman. She was very hysterical, peculiar girl. I operated at Dr. Tenney's request, and with the idea that all her sufferings were very much increased at the menstrual period, and that her life was becoming a wreck; but I found that she was taking morphine to excess. Dr. Tenney reported that she was very much better afterwards, but I could not see that she was any better. She went to the Adams Nervine Asylum. In 1887 she was reported free from the morphine habit. I do not think the operation was of any benefit, and I did not have much faith in the doctor's statement that she was free from the morphine habit.

The sixth case was a single woman, thirty-six, a teacher, also a morphine-taker. She had insane impulses at times and great pain when unwell. I operated at the request of her brother, who was superintendent of an asylum. He promised me that after the operation she should have no morphine; but he and her sister gave her a little morphine, and gradually gave her more. She recovered entirely from the operation. I could not see that she was better or worse. She went to the South End, and was treated by a doctor with cocaine instead of morphine. Whatever she was treated with she died suddenly apparently of an overdose of some drug. Dr. Whitney made an autopsy, and found no cause for death unless it was toxic. She had also been at the Adams Nervine Asylum.

The seventh case was a single woman, twenty-eight. Ovaries and tubes removed for the same causes. Pain in the left groin, in the spine and in the back of the head. Thought to be worse at the menstrual periods. She was no better after it.

The eight case was another good case, a morphine case, the wife of a physician. Her left ovary was rather enlarged and lower than it ought to be. The left ovary and tube were removed. She gave up the use of morphine, gained in a year twenty-six pounds, looked bright and cheerful, and takes no morphine now. She has had her monthly turns once in three weeks instead of once in four weeks. The pain was probably relieved by the removal of the ovary and tube, and she gave up the morphine because she no longer needed it.

The ninth case was a single woman, twenty-eight. Ovaries removed on account of pain. Done in 1887. No better, no worse.

The tenth case was a married woman, no children. Better for a time, but I cannot see that she was permanently improved.

On March 5, 1892, I operated on a woman, thirty-two, single. Two years of continued pain and suffering, pain and tenderness of the left side. Uterus symmetrically enlarged, four times its natural size. The right Fallopian tube red and enlarged and two acute flexures in it. Right ovary and tube removed. That woman was very much improved.

Another was a pretty good one, and she also had been in the Adams Nervine Asylum before I operated, and I think she has been there again. She was the wife of a physician. She had erotic dreams. One of her hopes was that removal of the ovaries would take away that feeling. I operated in 1885, and found a fibroid tumor, some ascitic fluid, and the cavity of the pelvis filled to the brim by the fibroid which extended to the umbilicus. Both ovaries and tubes were removed. The fibroid disappeared in four weeks and could not be felt. She went away feeling remarkably well. She continued very much better for a number of years; went home and played whist and had parties, and was pleasant with her husband, but did not get rid of these erotic feelings. As time has gone on she has gradually become pretty feeble; and yet, on the whole, I think when we consider that the fibroid disappeared and she has had several years of comparatively good health, I think the operation was a success, but it did not absolutely cure her.

Another case was a young lady on whom I operated in 1891 for the first time. I removed the ovaries and tubes on account of menstrual agony, dysuria and pain at her earnest instigation; and it has not done any good to her pain. The menstruation continued, too, but I think the use of the catheter was not nearly so frequent. She went on with the pain, emaciation, debility, etc., and two years later I removed the uterus by the vagina. She has not the menstruation and the bladder symptoms are relieved, but the pain is just the same; so bad has it been, that last spring at her importunity I said I thought it would be an intelligent proceeding to open the abdomen and ascertain if there were any adhesions. I opened the abdomen, but found everything just as clean and healthy as could be. It was very interesting because I had removed the uterus from below. There was just a little pucker from the bottom of the pouch of the peritoneum where the uterus had been, but no scar. The wound was sewed up, and she was up in a short time; and her pain was just the same as before. I sent her to the mind-cure, and they did not seem to do any good. She has never contracted the morphia habit. Certainly the removal of the ovaries and tubes has not done any good in this case.

That concludes my experience in this subject. I thought Dr. Baker's paper was to be more on the cure of nervous disease by the removal of the ovaries and tubes. My belief in the efficacy of removal of healthy ovaries and tubes for the relief of nervous disease is very slight. I think it may once in twenty times perhaps, do some good; but I should never do it without the advice of some alienist in whom I had confidence.

Dr. R. T. Edes: If I had known how conservative were the views taken by these gentlemen I do not know that I should feel like saying anything. But I am confident I have met some surgeons who were not so careful to wait for the proof of some positive disease or some connection between the ovarian disease and the nervous disease. I remember a

few years ago some young man, I think of a small town in West Virginia, did something like one hundred more or less normal ovariotomies in the course of about a year. I am very much pleased to hear how conservative the profession here are. I should have remarked a short time ago that my field of observation was of a character not to show me anything like the proportion of favorable cases; but since hearing Dr. Homans's remarks my list comes nearer to his than I had thought it would. I have known of quite a number of these cases he has spoken of. I should coincide with him in his views in regard to a great many of them. I might speak in detail of one or two I have known something about. A case came under my observation some years ago, a lady physician, who had had her ovaries removed for what I have little doubt were hysterical symptoms, but which she thought were due to strychnine or something of that kind. Since then she has grown steadily worse, violently insane, and is now hopelessly insane at St. Elizabeth's. Before she was taken sick I got her to see a patient of mine who had a good deal of menorrhagia and a good deal of pain at the menstrual period, and she introduced a female physician from Philadelphia, and they were anxious to perform ovariotomy on this lady. I gave a qualified assent. She did not have it done at that time, and I got her to see Dr. Homans; and he, without absolutely declining an operation, spoke so doubtfully about it that she concluded not to have it done, and there were reasons why she could not have it done at that time. She did not have it done at all and got well. This family physician who had advised the removal of her ovaries had since had her own removed and was staying at my house when the second lady, then in comparatively good health, came to call upon her.

I took pains to get the history of some twenty cases, and several are those Dr. Homans has spoken of. I got at, as far as I could, the condition of the ovaries removed. I do not know how accurate it is. Sometimes they are spoken of as healthy, sometimes slightly cystic; others, cystic and indurated. Out of the twenty there is one person spoken of as a well woman. Dr. Webber told me the other day of a patient who had been under his care at the Adams Asylum. The case was evidently of hysterical character; quite a young woman. She had had her ovaries removed by Dr. Haven, and she was well. There are two cases, apparently, out of twenty-one.

The case Dr. Homans spoke of as menstruating with pain long after, and where he was doubtful as to her having got rid of the morphine habit, I did not at first recognize, because the doctor who gave me the account of it did not give me the name of Dr. Homans. Dr. Homans is right as to her not having improved very much.

Another case which Dr. Homans referred to I have noted as a death by cocaine. Another case, a patient, with hallucinations of many kinds, is still at the asylum, although she is going away to-morrow. I supposed when she came she had had large ovarian tumors which were removed simply on surgical grounds, but it seems the case was of this same class. I should say from the description of the case that the operation had given considerable relief.

A number of cases have applied for admission who have had the ovaries removed, and have been declined because we have got to look upon those cases as so hopeless; not that the operation necessarily makes them worse, although it has seemed to me that sometimes it has served to fix the condition. The truth probably is that the operation is not usually done except in cases already very severe and obstinate. Certainly our experience is that they are not a very encouraging class of cases.

There is one case on the list operated on by Dr. Baker a number of years ago. She was with us as a chronic invalid and I have heard from her as being in much the same condition. She menstruated with a great deal of pain and difficulty, but the pain was not quite so great as before the operation.

I should say that the removal of the ovaries was chiefly a surgical question, that the ovaries and tubes when diseased are properly subject to a surgical operation, but that the removal of the healthy ovaries was something which should be undertaken certainly very, very rarely. If cases like the second Dr. Homans spoke of were frequent, I should feel differently; but I do not think they are frequent.

I may add one word as to the absolute safety of the operation. One of our patients who suffered severely from hysteria and dysmenorrhea went, after suitable consultation, to a hospital where I suppose the surgery to be as good as is done anywhere in the world. She died of this operation in a week, apparently of nervous shock, there being no signs whatever of sepsis.

DR. F. H. DAVENPORT: I think it is a fact that the general consensus of opinion in regard to the removal of healthy ovaries and tubes for nervous symptoms is that it should be exceedingly rarely done. I think even those who are most ready to remove such organs for slight disease are very slow to do it where there is no evidence of any disease; and it seems to me the question comes to us most frequently in those cases where we find evidence of slight disease of the tubes or ovaries and where the nervous symptoms predominate to a very marked degree. The question here is, How far can we attribute the nervous symptoms to the slight disease we find present? And that is where I think the neurologist can help in those doubtful cases before operation, and an opinion should be obtained of some expert in nervous diseases so that both sides of the question may be fairly looked into. My own feeling about these cases is that, in the first place, all other methods of treatment which hold out a fair prospect of success should be tried — rest and local treatment and electricity, and various other agents which are employed; and if these fail and the symptoms are either confined entirely to the menstrual period or markedly aggravated at that time, that such conditions form a reasonable ground for supposing that, if artificial menopause is produced, good will result. It certainly is a fact that such nervous phenomena as we observe in connection with these cases are very rare after the menopause. They may in certain cases persist if present before, but as far as I know they rarely originate after the change of life. It would therefore seem reasonable to suppose that if the change of life is produced artificially, a certain amount of gain would result to the nervous system. I suppose that in some of these cases where operations are done for very slight pelvic disease, the mental effect *per se* of the operation is an important factor, and it is possible that in such cases a simple incision of the abdominal wall

without opening the peritoneal cavity would produce as good results as the complete operation; but it seems to me that conscientious surgeons would hardly practice a method so open to objection as that. In this era of abdominal surgery where exploratory operation is really so little dangerous and the techique is easily carried out so that the sequelæ that often used to follow can be avoided, it seems to me as if it were not such a serious matter in these doubtful cases to operate. Of course, the freedom from danger in operations of this character does act as a stimulus to doing the operation unnecessarily, at the same time it is not as formidable a procedure as it used to be; and it seems wise in these cases to give the patient the benefit of the doubt, and operate and remove the appendages if they seem diseased. I have had no experience with the removal of healthy tubes and ovaries, and I should feel very loth to do it; but in cases where there is some pelvic disease recognized by the abdominal examination and especially under ether, even though such disease may be slight, I think the operation might very reasonably be advised mainly on the ground of the nervous symptoms.

Dr. P. C. Knapp: My experience with patients who have had the ovaries and tubes removed as a cure for their nervous symptoms has been very slight, although I have seen, of course, a good many cases where the tubes and ovaries are removed on account of local disease. I never yet have advised such removal on account of nervous disease. I never yet have seen good results from it. I have seen the patient's condition rendered worse. Of course, there can be no question that when there is distinct disease of the ovaries and tubes leading to pain or other distressing symptoms which wear upon the patient's health, an operation should be done, that measures should be taken for the relief of the condition. I confess myself very doubtful about the cases of disease of the uterus or ovaries or any other organ of the body giving rise to nervous disease, which does not at the same time give rise to certain symptoms pointing to the organ itself. We may have, as we all know, referred pain, but the condition of a distinctly reflex neurosis from disease of an organ elsewhere in the body, giving rise to no distinct symptoms pointing to that organ, seems to me to be rather hypothetical. We have been through various epidemics of that we might say: one, which was advocated a number of years ago, was the treatment of spastic paraplegia in boys by circumcision, which I think has fallen into "innocuous desuetude." When it comes to the removal of healthy ovaries and tubes for the relief of nervous symptoms, I have still graver doubts. The recent investigations in hypnotism, the recent studies as to the influence of suggestion seem to me to explain the very few favorable results that have thus far been reported. Where you have advised a woman to undergo a surgical operation, which to her mind is a very profound and serious thing, where you have done a serious surgical operation, you have exercised as great and powerful suggestion as you well can. Dr. Davenport speaks of the operation in itself as not very serious. It may not be as a surgical procedure, but it is serious to unsex a young woman. I think it is evidence of a very distinct progress in medicine, this revolt against the indiscriminate spaying which threatened to cut down the western population. It has always seemed to me a little strange that although there is another organ similar to the ovary, with a similar or greater nervous supply, frequently the subject of disease, we have not yet had — although the fashion may come some time — castration of the male advocated as a treatment of nervous disease. It is very natural that we should seek every cause for hysteria and for general nervous weakness but the true one. People are very glad to find some foreign cause rather than to admit the inherited or natural weakness of the brain. Beside the ovarian pains of hysteria, we have as persistent pains elsewhere, and excision has never been recommended for any of those pains. The evidence, it seems to me, in regard to the treatment of hysteria and these extreme nervous conditions by removal of the healthy uterus and tubes is altogether insufficient to support the operation, and, as I have said, my experience in the few cases where I have seen it done has not led me to favor it.

Dr. M. Prince: I understood that Dr. Baker's paper was to be on the removal of healthy ovaries and tubes, and not of diseased ones; and therefore it is with an apology to Dr. Baker that I say the few words I shall say, because they will have no bearing at all upon his paper. Regarding the removal of diseased tubes I do not desire to express any opinion at this time. I have a very strong and decided opinion on the question of removal of healthy ovaries and tubes. I do not doubt that there occur occasionally exceptional cases, cases which have taxed our ingenuity and our patience, cases in which we have tried everything and are willing to do almost anything, and I can conceive that in such a case I might be tempted or it might be justifiable to remove healthy ovaries thinking it might somehow or other remove the symptoms; but I believe, as Dr. Homans has said, and as Dr. Edes and Dr. Knapp have said, that such cases are very few, are exceptional, and even though the operation should be advisable I do not believe it is because there is the slightest connection between the healthy ovary and these nervous symptoms; nor does a successful issue show that the healthy ovary has anything whatsoever to do with the production of those symptoms. The same story has been repeated over and over again in connection with epilepsy. For epilepsy we have had every kind of operation suggested; for instance, to only mention a few, tying of the carotid, tying of the vertebral, castration, removal of the ovaries, trephining the skull simply, and so on, and yet all these operations have fallen into "innocuous desuetude," notwithstanding that some of these operations have had most brilliant results, as brilliant as any reported to-night, and yet we all know that epilepsy is not in any way connected with those parts which were the seat of operation. I dare say we may get successful results in the relief of nervous symptoms by the removal of the ovaries, but it is also true that those same results could probably be obtained in any particular case by any other operation. I believe with Dr. Knapp that when those results do occur they can be explained in a certain number of cases by suggestion, and in other cases, if not by suggestion, by some profound physical effect on the nervous system which could probably be produced by any operation such as the amputation of a toe; and if it comes down to the question of the removal of a toe or removal of the ovaries, I think it might be decided in favor of the ovary and to remove the toe. One reason why I speak somewhat strongly is because the operation itself is founded upon a wrong pathology of nervous disease. The latest researches that have been made, es-

pecially the researches made in France, have shown that our knowledge of hysteria in particular must be completely revised. We have learned much regarding this disease. That the origin of hysteria is not in a healthy uterus or ovary, of course, has long been known, notwithstanding the temporary popularity of the removal of these organs. But, more than this, it is evident that we must look for the origin of hysteria in the brain or mind itself and not in irritation from distant parts; in many cases, at least, in certain fixed ideas, or in fixed morbid nervous processes which do not rise perhaps as high as ideas. Certainly the origin of many of these symptoms is not in the uterus, but in the mind itself.

The last case which Dr. Homans reported, that of a woman complaining of pain, was to me a typical case of what might be called subjective as opposed to objective pain. I believe the pain in that case arose in the patient's brain, from an association of processes there. This ovarian pain is one of the most common symptoms in nervous prostration, and has nothing to do with the ovary. I believe it arises from its connection with central processes and not peripheral processes, and when it is cured by operation it is by the profound effect on the system by suggestion and not by the operation *per se*.

DR. BAKER: I feel very glad to be so strongly assured by the remarks of the several gentlemen that the healthy ovaries and tubes of our women in this locality are so carefully guarded. I am sure that it is as it should be. There is no danger in this locality of our being so strongly criticized as some other places have been in regard to the wholesale manner in which the ovaries have been lost.

Before reading my paper I made an apology for the title. I am very glad indeed that the title proved a little misleading, in that it called out such a remarkably interesting series of cases as those presented by Dr. Homans, and also the remarks of some of the gentlemen present. I also thank you, Mr. Chairman, and the Society that an indulgence was granted in that the lines of the discussion were not drawn too rigidly and that the subject under discussion was broadened to take in the question of the removal of the healthy ovaries and tubes as well as those considered by the subject of the paper itself. I desire to thank the Society for the interest shown in the paper.

## Recent Literature.

*Blood-Serum Therapy and Antitoxins.* By GEORGE L. KRIEGER, M.D., Surgeon to the Chicago Hospital, etc. Chicago: E. H. Colegrove & Co. 1895.

The purpose of this little book is to present, in a readable form, the present state of our knowledge of the subjects which constitute its title, and an account of the experimental work upon which this knowledge is based. This has been fairly well done, although some recent important work receives no mention. A book of this kind has only a transient value in these days of rapid advance in our ideas concerning infection and immunity, so that when it reaches the readers' hands it may be already behind the times. A few reproductions of micro-photographs of bacteria are included.

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## THE ABORTIVE TREATMENT OF ACUTE BRONCHITIS.

WE are indebted to a French therapeutist for the knowledge of how to *abort* an attack of acute bronchitis. Dujardin-Beaumetz in the last number of his *Bulletin de Thérapeutique* formulates this treatment in these terms: "Massive doses" of tincture of aconite twice a day. Be sure your subject is a vigorous adult, then give him twenty-drop doses night and morning of the strong tincture of the root!

We are advised to continue "this medication" for eight days! This is the "abortive" treatment of acute bronchitis!

Just on what principles these large doses of this powerful narcotic are supposed to act in breaking up a bronchitis, the distinguished writer does not inform us. We have been taught to regard aconite in such doses as an energetic spinal, cardiac and vaso-motor depressant. Good authorities, as Brunton, Stillé, H. C. Wood, Ringer, recommend small doses often repeated. Even Dujardin-Beaumetz admits that the large amounts may do harm, and that susceptible persons have died from the effects of such massive doses as he recommends. Therefore we must first be sure that our patient has no unusual susceptibility to the drug.

But seriously, it may be asked on what principle aconite given in any dose does good in a cold or in a bronchitis? And perhaps it would be difficult for even the enthusiastic prescriber of the drug to give a perfectly satisfactory answer. He would probably say that he gives aconite from empirical considerations. It might be alleged, too, that aconite slows the pulse, lowers the temperature, quiets the nervous system and so benefits the patient. Dr. Fleming's conclusion, from a consideration of the action of this drug on the circulation, is that it is a medicine of great value in all cases where there is inordinate activity of the circulation; it lowers the arterial tension, and so diminishes the flow of blood to the part. Many think that this is

not absolutely demonstrated. Ringer says that aconite causes capillary congestion. Cold does the same. Aconite cures because it depresses the vaso-motor system, and hence lowers the excitement of febrile reaction. But in order to accomplish this the dose should be small and frequently repeated, so as not to allow any secondary wave of reaction. Large doses produce too powerful a shock to the nervous system, and the ensuing reaction is intense; any therapeutic gain is bought at the expense of too much prostration.

These considerations, whether entirely well founded or not, have influenced great numbers in the profession. Aconite is still given largely in bronchial complaints but in small doses.

It is still regarded by many, for empirical reasons, as almost specific in acute inflammatory throat troubles. It would not, however, be difficult to show that the number of practitioners who put much confidence in this old remedy, and prescribe it habitually in throat and broncho-pulmonary affections is a constantly *diminishing* quantity. It does not figure largely among the standard medicines in the principal hospitals, while ipecacuanha still holds its own, at least in infantile therapeutics.

. Doubtless the present views, becoming generally prevalent, relative to the microbian origin of even the common bronchial catarrhs (see JOURNAL, 1893, No. 21, p. 522) are doing much to influence the choice of remedies in these affections. It seems now most probable that the first step in the series of morbid changes resulting in bronchitis consists in a disorder of the vaso-motor innervation which causes congestions and places the organism in a state of lessened resistance; and just in those localities where microbes are normally present we see inflammations set in of microbe-origin which are truly infectious, though non-specific.

If this view be correct, remedies are to be sought which shall improve rather than lower vaso-motor innervation on which the inflammatory changes so much depend. Alcoholic stimulants, quinine and strychnia are prescribed with some reference to this end. Alcohol and quinine at the same time promote the peripheral capillary circulation, sustain the heart, and so oppose congestions in foci of least resistance. A hot diaphoretic drink at the onset of the cold, and rest in bed may do much to abort a bronchitis. The benefit accruing from rest and general warmth is too obvious to require comment.

## CRAIG COLONY FOR EPILEPTICS.

THE Annual Report of the Board of Managers again draws our attention to this institution, the second one of its kind to be established in the United States, and also to the subject of State aid for this class of unfortunates. Ohio was the first State to take definite measures towards the establishment of a separate State institution for epileptics, and in 1890 passed a bill authorizing the appointment of a committee to select a site and to contract for the erection of buildings for this purpose. This institution was placed at Gallipolis, and is now known as the Ohio Hospital for Epileptics.

An act "providing for the appointment of a commission to locate an institution for epileptics in the State of New York" was passed in 1892. This commission selected an estate of a little more than 1,850 acres near Mt. Morris, in Livingston County; and in 1894 the legislature appropriated $140,000 for the purchase of this property, for its protection and care, and for the renovation of the buildings already existing, so as to render them suitable for the reception of patients. This property has now been purchased; and the buildings, with some alterations and repairs, will accommodate at least 300 epileptics. The institution was named "The Craig Colony for Epileptics."

The managers desire to admit inmates to the institution in the spring, and ask for the sum of $25,000 for the maintenance of 100 patients. The estate requires that indigent persons shall be received into this colony, and paid for by the State at not more than $250 per annum for each patient, and persons so paid for shall be known as State patients. The board proposes to build this year five buildings — an administration building, two observation cottages, and two hospital cottages. On admission to the colony each patient is at first to be sent to an observation cottage, so that he can be watched for a time until his exact condition has been ascertained, and he can be properly classified and assigned to the building most suited to his requirements. The importance of the proper classification of epileptics is thus almost for the first time practically acknowledged in this country; and in this a great advance has been made, both for the study of the disease and for the care and cure of the patients.

The demand for the establishment of State institutions for the care of epileptics in the more densely populated States is very great. In the State of New York the number of epileptics is estimated at 12,000, of which about 400 are in the insane asylums and about 600 in the county poorhouses. In Massachusetts last year there were rather more than 300 adult epileptics in the asylums and almshouses.

We cannot better express the claim of this class to public care and sympathy than by a short quotation from the report: "The State now makes provision in separate institutions for the insane, the blind, the deaf and dumb, and others suffering from chronic maladies. All these unfortunates are proper subjects for State care, but not more so than the epileptics, for whom nothing has been done. At present the epileptic, if he is in indigent circumstances, is sent to the poorhouse, where his condition rapidly becomes worse. If possessed of means, he remains among his relatives and friends, a constant source of worry and trouble to them, and constantly undergoing mental and moral deterioration. Whether rich or poor, he is shunned and feared by all who do not consider themselves responsible for his welfare; and he is in many respects more an object of sympathy than either the blind or the deaf and dumb."

## RESULTS OF ANTITOXIN TREATMENT.

IN a book which has recently appeared under the title "Diphtheria, Croup, Serumtherapie," Escherich, of Graz, gives his experience with diphtheria antitoxin. Out of 87 cases of diphtheria he had employed the antitoxin in 51, that is, in all the severe cases; of these, five, or 9.5 per cent., died. This percentage is diminished to 3.8, if three cases which were moribund when first seen are not counted. The total mortality from diphtheria at the time the serum was employed was 9.2 per cent. Leaving out the three cases alluded to above, this became 4.5 per cent., thus giving 95.5 per cent. of cures, a percentage which he had not been able to approach during a long service at the Children's Hospital.

Escherich divides his cases into three classes: (1) localized diphtheria; (2) progressive laryngeal diphtheria; (3) septic diphtheria. Of these the second form was most favorably influenced by the serum treatment. The most important effect of the antitoxin, according to Escherich, lies in the influence on the local process, in the rapid separation, and prevention of spreading of the membrane. Less evident is its effect on the toxic symptoms.

The serum treatment must be begun as early as possible. Escherich makes the statement that the mortality of cases of uncomplicated diphtheria, brought under treatment within the first three days of the disease, and treated carefully and intelligently by antitoxin, can be reduced to zero. As to unpleasant after-effects, he noted in three cases an eruption appearing twelve to fourteen days after the injections, complicated in one case by fever and pain in the joints.

## MEDICAL NOTES.

PROF. E. L. RICHARDS ON FOOTBALL. — Prof. E. L. Richards, of Yale, contributes to the March number of the *Yale Medical Journal*, an article on football, which should be widely read, especially by those who inveigh so fiercely against the game.

SMALL-POX AT HOT SPRINGS, ARK. — An epidemic of small-pox has broken out at Hot Springs, Ark. Forty-two cases are reported to have occurred. A house-to-house vaccination is being made, and other precautionary measures taken. The authorities report that they expect to have the epidemic under control within a short period.

TREATMENT OF DIPHTHERIA WITH ANTITOXIN. — Dreyfus (*Lyon Médical*, 1895, No. 5, page 146) relates that from October 15, 1894, to January 21, 1895, 78 cases of diphtheria were treated with the antitoxin at the Charité Hospital of Lyons. Among this number there were 15 deaths, a mortality of 19.29 per cent. Five of the deaths were due to conditions of which the diphtheria was a complication, one to typhoid fever, one to pneumonia, one to diarrhea, and two to broncho-pneumonia. In previous years the mortality of diphtheria has been 50 per cent.

SPONTANEOUS FRACTURE OF RIBS. — In the *British Medical Journal* for January 12th, a case was reported of spontaneous fracture of the eighth and ninth ribs in an anemic woman just previous to the onset of labor. John Freeland, government medical officer at Antigua, West Indies, reports two other cases in a letter to the same journal. One occurred during a severe paroxysm of coughing, and the other during a severe labor pain. The last case occurred in an unusually muscular woman, the eighth and ninth ribs on the right giving way with an audible report, being broken undoubtedly by the action of the powerful abdominal muscles.

TUBERCULOSIS OF THE PLACENTA. — Lehmann (*Berlin. Klin. Woch.*, 1894), reports from the Obstetrical and Gynecological Clinic of the Charité Hospital in Berlin, a case of importance with regard to the transmission of tuberculosis from mother to child. On examination of the placenta from a mother suffering from chronic tuberculosis of the lungs and larynx, he found a large tubercular focus in the chorion. In a villus which projected into this tubercular mass he found a few tubercle bacilli. The child of this tubercular mother died on the tenth day, and at the autopsy no evidence of tuberculosis was found. In a case previously reported a large tubercular focus was found in the decidua.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, March 1, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 44, scarlet fever 47, measles 55, typhoid fever 2.

INCREASED SALARY FOR CHAIRMAN OF BOSTON BOARD OF HEALTH. — The salary of the Chairman of the Boston Board of Health is to be increased from $3,000 to $4,500. This is an act of simple justice and at the same time of real economy. An incompetent commissioner of health is dear at any salary; on the other hand, for the services of an experienced sanitarian who must at the same time be an independent, impartial, intelligent judicial and executive official, the larger salary is really small. For many years Boston has enjoyed the advantages of such combined service from Dr. S. H. Durgin. We doubt whether there is another department administering the city's affairs, in regard to which as little adverse criticism has arisen as in regard to the Board of Health during the last twenty odd years; and yet there is no department in which mistakes might more easily be made, and none in which mistakes would be likely to entail more serious consequences to the community. We are glad the city government is disposed to show appreciation of Dr. Durgin's past services to the city and to retain the benefit of his experience for the solution of future problems.

The wise administration of the sanitary affairs of a big, modern city is no small problem.

The Boston District Nursing Association. — The annual meeting of the Boston Instructive District Nursing Association was held at the home of Mrs. William Appleton, 76 Beacon Street, on February 27th. Twelve nurses have been maintained by the association, each having a district under her charge. These have attended the various dispensary physicians on their rounds, and have had charge of the outdoor relief department of the Children's Hospital. Addresses were made at the meeting by Dr. Charles L. Scudder, Dr. John W. Bartol and Rev. John S. Lindsay, D.D., who thanked the association for the valuable service its nurses were performing in educating the sick poor to an understanding of better methods of life. The following-named officers were elected: Miss Phœbe G. Adam, President; Mrs. C. P. Donald, Secretary; Mrs. Otis Norcross, Jr., Treasurer.

Bovine Tuberculosis. — The Joint Committee on Agriculture and Public Health of the Massachusetts Legislature, which has in charge the matter of the suppression of bovine tuberculosis, is reported to have agreed that the cattle commission is to be granted $150,000 for the completion of its work, instead of the $212,000 asked; that the farmers are to receive as compensation for tuberculous cattle the full value of a healthy animal; that the State shall pay all quarantine expenses after seven days, and also pay for all carcasses condemned as tuberculous at the slaughter-house. As the cattle are ordered to quarantine by local inspectors not responsible to the State commission, and as owing to the smallness of the appropriation the force of the commission will have to be reduced, so that it will be impossible to make all tests within the seven days of quarantine at the farmers' expense, it is feared that if this bill becomes a law, it will result in very heavy expense to the State. With regard to paying for tuberculous carcasses at the slaughter-houses, what reason is there that the State should pay for them, any more than pay for other food unfit for use? And what has the payment by the State for meat condemned as tuberculous to do with ridding the State of tuberculosis among live cattle? Surely this bill, if passed, will be framed to give the farmers and cattle-owners something for nothing, — in fact, pay them for allowing the favor to be done them of purifying their herds. It would be a profitable business for farmers to import tuberculous cattle purchased at their real value outside the State and sell them to the State for ten times their real value!

## NEW YORK.

Influenza in New York. — During the week ending February 23d, 42 deaths from influenza were reported in New York, and in the week ending March 2d, 32.

Dr. Jenkins Appointed Special Pathologist. — At a meeting of the Board of Coroners held March 2d, Dr. Wm. T. Jenkins, recently Health Officer of the Port, was appointed special pathologist to the board, without salary. His duties will be to assist in making autopsies when requested, and it is stated that Dr. Jenkins had offered his services gratis.

A Gift to the Montefiore Home. — The Montefiore Home for Chronic Invalids has received a gift of $25,000 each from Messrs. Jacob H. Schiff and L. G. Bloomingdale for the founding of a country branch for the reception of patients suffering from the early stages of pulmonary tuberculosis.

Roof Gardens for the Poor. — At a recent meeting of the Board of Aldermen a special committee, consisting of the standing Committees on Police, Health and Docks, was appointed for the purpose of investigating the subject of roof gardens for the poor on the river docks. They were requested to recommend to the board at an early date what number of such gardens should be erected and to introduce such resolutions, ordinances, etc., as will carry the project into effect.

Transfer of Dependent Insane from County to State Care. — A bill, which seems likely to be passed, has been introduced in the Legislature at Albany having for its object the transfer of the dependent insane of New York County. This measure, which, it is understood, emanates from the State Charities Aid Association, provides that the New York City asylums for the insane, located on Ward's Island in East River and at Central Islip, Long Island, shall be transferred to the care and custody of the Manhattan State Hospital, to be established by the act. The whole of Ward's Island, with its buildings and the equipment of the existing asylums, is to be leased to the State at a rental which is to be the equivalent of interest at the rate of 3 per cent. upon the sum of $2,500,000. The Central Islip property is also to be leased to the State at a rental which shall be the equivalent of the interest of 3 per cent. upon $400,000. It is provided that either of the leases may at any time be surrendered by the State, or may be terminated by the city, by five years' written notice to the comptroller of the State.

The Manhattan State Hospital. — The Manhattan State Hospital is to be governed by a board of seven managers, appointed by the Governor and confirmed by the State Senate, and their powers and duties shall be the same as those of the managers of the other State Hospitals. The Commissioners of Charities and Correction of New York City are to surrender the lands and buildings of the existing asylums, with their furniture, fixtures, stock and supplies then on hand, to the newly-created State hospital on the 1st of October, 1895. An appropriation of $25,000 is made for the lease or purchase of a dock and for the purchase of a steam ferry-boat. The medical officers of the present asylums are continued in office during the pleasure of the board of managers of the new State hospital, subject to the civil-service rules applicable to the other State hospitals.

FATAL TROLLEY ACCIDENTS IN BROOKLYN.—The continued serious loss of life by the trolley cars of Brooklyn has of late given rise to much indignation on the part of the public, and in the presentment of the February Grand Jury of that city, made on March 2d, considerable attention is given to the matter. "Investigation," it says, "has shown the imperative necessity of some prompt legislative action for the regulation of the speed of trolleys, with penalties severe enough to be absolutely deterrent to the management that leads to these shocking and harrowing accidents, and we earnestly request our representatives in Albany to do all in their power to secure the passage of laws that will give safety to our streets." As the accidents have almost all occurred in the older and more thickly populated parts of the city, the jury suggests that eight miles an hour should be the highest rate of speed permitted there, while in the newer and more sparsely settled the limit might be placed at ten or twelve miles.

ADDITIONAL PUBLIC SCHOOL ACCOMMODATION. — The Legislature recently passed a bill appropriating $5,000,000 for additional public school accommodation. This liberal provision will be ample not only to secure adequate accommodations for all the children who have been crowded out from the schools, but also to put all the school buildings now in use (with the exception of a few which will no doubt be abandoned on account of their radically defective character), in satisfactory sanitary condition. It is stated that since the opening of the schools in September last it has been found necessary to refuse admission to 12,316 pupils on account of the insufficient accommodation. Of the amount appropriated it is proposed to expend $3,000,000 in the erection of new buildings, and the remainder in enlarging and improving present buildings.

THE PUBLIC LIBRARY OF NEW YORK CITY. — An event of unusual importance during the past week has been the practical consolidation into one organization of the great Astor, Lenox and Tilden libraries. This will put at the disposal of the city a magnificent library, comprising at present more than 450,000 bound volumes and an immense number of rare and valuable pamphlets, and including property and endowments amounting to over $8,000,000. In general it may be said that the amounts which will go to make up the aggregate of the $8,000,000 to be administered by the board of managers of the consolidated library are composed of property and endowments as follows: about $2,000,000 from the Astor Library, about $4,000,000 from the Lenox Library, and $2,000,000 from the Tilden Trust. In addition to the last sum, the valuable private library of the late Samuel J. Tilden will be included. All these properties, under the scheme of consolidation, are to be thrown together in a common fund, passing absolutely out of the hands of the present directors of the separate institutions, and subject in future to the control of a consolidated board consisting of twenty-one members. The site of the new library has not yet been decided upon.

## Miscellany.

### DOUBT THROWN UPON THE "MISSING LINK."

IN a letter to *Science*, under date of February 14th, Harrison Allen ventures to doubt the validity of the "Pithecanthropus," the skeletal fragments of which were found in the early pleistocene strata of Java by Dr. Dubois, as was noted in the JOURNAL of February 21st. The skull of the "ape man" was acknowledged by Dr. Brinton, the reviewer of Dr. Dubois' memoir, to be like that of the famous Neanderthal man and the femora were described as "singularly human." Now on the evidence of the single molar tooth which has been preserved, and which, Allen thinks, conforms closely to the human type, he concludes that the "ape man" was in all probability a man, and not an ape in any sense of the word. Allen is supported in this opinion by a communication which appeared in *Nature*, January 29th, presumably from Richard Lydeker, who comes to the same conclusion on the evidence furnished by the skull, the femora and the tooth. This latest "missing link" must probably join its discredited predecessors, and the "ape man," if found at all, must be dug up from strata earlier than those of the early pleistocene of Java.

### BALDNESS AND INDIGESTION.

THE cause of baldness is a question which has a personal interest for many people in these days when the "new man" finds it almost as difficult to keep his hair as the "new woman" does to find a husband. The theory of the bald-headed man generally is that his exceptionally active brain has used up the blood-supply which should have nourished his scalp; but those whose crop of hair still stands untouched by the scythe of time unkindly hint that this explanation is of a piece with Falstaff's excuse that he had lost his voice by "singing of anthems." Then there is the theory of the hat, which we are told makes for sanitary unrighteousness in two ways — allowing no ventilation, and by its hard rim cutting off part of the blood-supply from the scalp. Again, there is seborrhea, which prepares the way for fungi that blight the hair. It would have been wonderful if that pathological scapegoat, indigestion, had not had this particular misdeed laid to its charge. We are not surprised, therefore, to read in an American contemporary that dyspepsia is the great cause of baldness. This is how the mischief is done: "Nature," we are assured, "is very careful to guard and protect and supply the vital organs with the proper amount of nutriment; but when she cannot command a sufficient quantity of blood-supply for all the organs, naturally she cuts off the supply of parts the least vital, like the hair and nails" — just as one of our "splendid paupers" discontinues his subscription to a hospital in view of the death duties. The hair, in fact, dies that the nobler parts may live up to a proper standard of physiological efficiency. The best way to escape baldness is therefore to be careful in our diet and above all to avoid irregularity in meals — a counsel of perfection which the busy man too often finds it impossible to follow. We are not prepared to deny that indigestion may have something to do with baldness, but the part it plays is probably altogether secondary. We

know of no evidence that baldheaded men are more dyspeptic than their neighbors, and women, who suffer much — chiefly through their own fault — from digestive troubles, are very seldom bald. The increasing prevalence of baldness might, with at least as much plausibility, be ascribed to the general betterment in our social condition that is taking place. The late Prince Consort (who himself lost his hair early) held that baldness is a sign of breeding; heredity, therefore, rather than indigestion would account for its frequency in the upper ranks of society. On the other hand, hairiness and anarchism often go together, as if the bomb-throwing brotherhood had determined to throw off even the mild tyranny of the barber with other forms of government. — *British Medical Journal.*

## A CASE OF SEXTUPLETS.

Vassali, in the *Gazetta Med. Ital. Lombardia*, gives an account of the birth of six children at one birth, which is said by von Herf[1] to be the first well-authenticated case on record. For some reason it has failed to attract general attention. The patient, a ii-para, thirty-six years of age, during the early months of her pregnancy, grew anemic, weak and complained of chilly feelings. Motion was not felt. In the fourth month of pregnancy the abdomen had grown as large as in ordinary pregnancy at full term, so that the woman daily expected confinement.

On the 115th day of pregnancy, while straining at stool, the membranes ruptured and a foot prolapsed, no pain having been felt before this incident. A fetus was delivered by a midwife. Vassali, who was called in the mean time, found the patient with an enormously-distended abdomen, within which were to be felt numerous small parts. No fetal heart was heard, nor were movements felt. As the cervix was but slightly dilated and no pains were to be felt, it was decided to wait.

On the next morning pains began with chills and flowing, the temperature rose to 38.7° C. with vomiting; and it was decided to terminate the pregnancy, as miscarriage was now inevitable. Accordingly the membranes were ruptured, a foot brought down and a second fetus delivered. A third bag of membranes presented, a third fetus was delivered; and so on till the fifth. This process lasted two hours, when fresh bleeding led Vassali to hasten the termination of what he thought was the third stage of labor, he naturally supposing that no further fetuses were to be expected. Traction on the umbilical cords was unsuccessful, and an attempt to remove the placenta by the hand in the uterus started so sharp a hemorrhage that Vassali, who was by this time completely exhausted, sent for assistance, not deeming it wise to attempt the removal of the placental mass.

He therefore kept his hand in the uterine cavity for four hours, until assistance arrived in the persons of three physicians from Lugano. Dr. Sulari with considerable difficulty removed the placenta, together with a sixth amniotic sac and fetus.

Convalescence was practically normal.

In the following year the woman gave birth to healthy twins, which were living at the time of this communication.

[1] Fortschritte der Medicin, October 4, 1894.

All the fetuses were born alive, and moved vigorously, the sexual organs were differentiated, four being males and two females. The large single placenta, bearing the six amniotic sacs, was unfortunately so lacerated that further investigation of it was useless. The specimen is preserved in the museum of the Obstetrical School at Milan.

## Correspondence.

### HUMAN EMBRYOS DESIRED.

Harvard Medical School,
Boston, March 2, 1895.

Mr. Editor: — May I take advantage of your kindness to appeal through your valuable columns, for assistance from practitioners in securing embryological material. I am desirous of greatly extending my researches on Human Embryology, and shall be very grateful for any material, and especially for normal embryos of three months *or less*. Of young human embryos the number which have hitherto been studied is still extremely small, and every specimen which can be secured for proper examination must be considered of great scientific value. I hope, therefore, that there will be very numerous responses to my appeal, especially since only by having very numerous embryos at command has it, in my experience, been found possible to obtain a few which are perfectly available for histological purposes. The difficulty is not that those who have furnished me with material were not sufficiently skilful in the methods of preservation, but on the contrary the difficulty comes from the rarity of the discharge of normal embryos while still fresh.

In regard to the treatment of embryonic material, it is, of course, best to receive it at the laboratory of the school whenever it can reach there really fresh in condition, for the resources here at command render a very careful preservation always feasible. When there is likely to be any delay, it is desirable to follow one of two methods: (1) If the membranes are intact, place the specimen *without opening the membranes* in a liberal quantity of strong alcohol, that is, full strength of 95 to 96 per cent. (2) If the embryo is exposed, the membranes being broken, place it in 60 per cent. alcohol.

Though young embryos are the ones most earnestly desired, older embryos are also valuable.

It need hardly be added that I shall be more than glad to pay any expenses incurred in preserving or forwarding embryos to me. I have the honor to remain

Yours respectfully,
Charles S. Minot, S.D.

### METEOROLOGICAL RECORD,

For the week ending February 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather. | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..17 | 29.78 | 33 | 43 | 23 | 59 | 40 | 50 | W. | W. | 12 | 6 | C. | O. | |
| M..18 | 29.90 | 36 | 43 | 28 | 67 | 70 | 69 | N. | S. | 4 | 12 | C. | O. | |
| T..19 | 29.82 | 36 | 46 | 26 | 91 | 59 | 75 | S.W. | S.W. | 10 | 12 | O. | C. | |
| W..20 | 29.76 | 33 | 38 | 28 | 57 | 48 | 52 | W. | W. | 10 | 10 | C. | C. | |
| T..21 | 29.55 | 34 | 42 | 26 | 68 | 78 | 72 | S. | S.W. | 15 | 11 | O. | C. | |
| F..22 | 29.77 | 24 | 28 | 19 | 56 | 54 | 55 | W. | W. | 20 | 16 | C. | C. | .01 |
| S...23 | 30.15 | 20 | 28 | 11 | 51 | 58 | 54 | W. | N.W. | 13 | 12 | F. | C. | |
| ☞ | 29.82 | | 38 | 23 | | | 61 | | | | | | | .01 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 23, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Typhoid fever. |
| New York | 1,956,000 | 889 | 317 | 11.44 | 21.67 | .88 | 5.39 | .44 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | — | — | — | — | — | — | — |
| Brooklyn | 1,043,000 | 400 | 120 | 9.00 | 23.50 | 1.00 | 5.50 | .50 |
| St. Louis | 540,000 | — | — | — | — | — | — | — |
| Boston | 501,107 | 264 | 87 | 10.28 | 33.44 | — | 6.46 | .38 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 139 | 34 | 8.64 | 15.84 | 1.44 | 2.88 | 1.44 |
| Cincinnati | 325,000 | 165 | 38 | 5.49 | 22.78 | 1.83 | .61 | 3.05 |
| Cleveland | 325,000 | — | — | — | — | — | — | — |
| Pittsburg | 272,000 | 95 | 32 | 11.55 | 19.95 | — | 4.20 | 6.30 |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 33 | 9 | 9.09 | 21.21 | — | — | 3.03 |
| Charleston | 65,185 | 40 | 10 | 2.50 | 7.50 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 36 | 8 | 5.56 | 22.44 | — | 2.78 | — |
| Fall River | 92,233 | 28 | 9 | 17.85 | 14.28 | 14.28 | — | — |
| Lowell | 90,613 | 48 | 17 | 6.24 | 22.88 | 2.08 | — | — |
| Cambridge | 79,697 | 35 | 3 | 8.58 | 25.74 | — | 8.58 | — |
| Lynn | 68,123 | 32 | — | — | 34.43 | — | — | — |
| Springfield | 50,284 | 28 | 9 | 7.14 | 50.00 | — | 3.57 | — |
| Lawrence | 49,900 | 48 | 17 | 6.24 | 22.88 | 2.08 | 2.08 | — |
| New Bedford | 47,741 | 25 | 9 | 8.00 | 24.00 | — | — | 4.00 |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 39,839 | 12 | 1 | — | 33.33 | — | — | — |
| Salem | 33,158 | 14 | 3 | — | 14.28 | — | — | — |
| Haverhill | 32,925 | 13 | 1 | 15.38 | 7.69 | — | 7.69 | — |
| Malden | 30,209 | 9 | 0 | 11.11 | 22.22 | — | 11.11 | — |
| Chelsea | 29,806 | 18 | 2 | — | 27.77 | — | — | — |
| Pitchburg | 29,283 | 7 | 3 | — | 14.28 | — | — | — |
| Newton | 28,837 | 16 | 4 | — | 56.25 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,964 | 8 | 2 | — | — | — | — | — |
| Waltham | 22,038 | 9 | 2 | — | 22.22 | — | — | — |
| Quincy | 19,843 | 5 | 1 | — | — | — | — | — |
| Pittsfield | 18,802 | 5 | 1 | — | 20.00 | — | — | — |
| Everett | 16,585 | 5 | 4 | — | — | — | — | — |
| Northampton | 16,331 | 8 | 2 | — | 12.50 | — | — | — |
| Newburyport | 14,073 | 6 | 2 | — | 16.66 | — | — | — |
| Amesbury | 10,920 | 4 | 1 | — | — | — | — | — |

Deaths reported 2,556: under five years of age 778; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 330, acute lung diseases 602, consumption 295, diphtheria and croup 106, diarrheal diseases 26, typhoid fever 24, scarlet fever 23, whooping-cough 17, cerebro-spinal meningitis 13, measles 12, erysipelas 8, small-pox 1.

From scarlet fever New York 15, Boston 4, Brooklyn, Washington, Nashville and Somerville 2 each, Pittsburg, Charleston, Fall River, New Bedford, Haverhill and Woburn 1 each. From whooping-cough New York 10, Brooklyn 4, Boston, Providence and Worcester 1 each. From cerebro-spinal meningitis New York 4, Boston, Washington and Somerville 2 each, Lowell, Springfield and Lawrence 1 each. From measles New York 9, Lowell, Springfield and Lawrence 1 each. From erysipelas New York 5, Boston 2, Brooklyn 1. From small-pox Brooklyn 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending February 16th, the death-rate was 26.7. Deaths reported 5,430: acute diseases of the respiratory organs (London) 840, whooping-cough 93, measles 64, diphtheria 53, scarlet fever 36, fever 35, diarrhea 33, small-pox (London and Birmingham 1 each) 2.

The death-rates ranged from 14.5 in Croydon to 39.6 in Liverpool; Birmingham 25.7, Bradford 24.0, Cardiff 24.5, Huddersfield 20.4, Leeds 27.7, Leicester 21.3, London 29.3, Newcastle-on-Tyne 21.9, Nottingham 23.0, Portsmouth 20.9, Salford 25.8, Sunderland 20.4, West Ham 21.3.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 23, 1895, TO MARCH 1, 1895.

Leave of absence for six months, on account of sickness, is granted FIRST-LIEUT. FRANK T. MERIWETHER, assistant surgeon, U. S. A.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 2, 1895.

A. A. HOEHLING, medical director, detached from Naval Hospital, Chelsea, Mass., and granted three months' sick leave.

AMMEN FARENHOLT, assistant surgeon, detached from the Norfolk Navy Yard and ordered to the U. S. S. "Baltimore."

C. P. KINDLEBERGERM, assistant surgeon, detached from U. S. Receiving-ship "Vermont" and to the Norfolk Navy Yard.

ARTHUR W. DUNBAR, assistant surgeon, detached from the Naval Laboratory and Department of Instruction and to the U. S. Receiving-ship "Vermont."

J. B. PARKER, medical inspector, detached from duty in connection with the investigation of the Ford Theatre disaster and to the hospital and yard, Portsmouth, N. H.

D. MCMURTRIE, medical inspector, in addition to present duties to duty in connection with the investigation of the Ford Theatre disaster.

## OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE THIRTEEN DAYS ENDING FEBRUARY 28, 1895.

CARTER, H. R., surgeon. To assume temporary command of Cape Charles Quarantine during absence of Passed Assistant Surgeon T. B. PERRY. February 27, 1895.

KALLOCH, P. C., passed assistant surgeon. Directed to rejoin station, Cincinnati, O. February 21, 1895.

PERRY, T. B., passed assistant surgeon. To proceed to Brunswick, Ga., Quarantine, for temporary duty. February 27, 1895.

HOUGHTON, E. R., passed assistant surgeon. Granted leave of absence for two days. February 18, 1895. Leave of absence extended five days. February 22, 1895.

BLUE, RUPERT, assistant surgeon. To proceed to San Francisco, Cal., for duty. February 23, 1895.

## HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, March 21st, at 8 o'clock, by Asst. Prof. W. T. Porter. Subject, "The Physiology of the Cortex of the Brain." Physicians are cordially invited.

## SOCIETY NOTICES.

AMERICAN MEDICAL PUBLISHERS' ASSOCIATION. — The annual meeting will be held in Baltimore, on May 6th, convening in the parlors of the Eutaw House, at 9.30 A. M.

CHARLES WOOD FASSETT, *Secretary*.

## RECENT DEATHS.

FRANK L. DUBOIS, medical inspector, United States Navy, died of apoplexy, February 24th, at Portsmouth, N. H. He had been thirty-three years in the service.

DR. GEORGE OCTAVE DUJARDIN-BEAUMETZ died in Paris, February 16th, aged sixty-one years. He was made a commander in the Legion of Honor in 1894. He was editor-in-chief of the *Bulletin de Thérapeutique* and the author of many suggestive works on subjects in clinical medicine, therapeutics and hygiene. He was visiting physician at the Cochin Hospital for many years.

JOHN WHITAKER HULKE, President of the Royal College of Surgeons of England and senior surgeon to the Middlesex Hospital, died in London, on February 19th, from broncho-pneumonia, following influenza. He was sixty-five years of age. He was eminent not only as a general and ophthalmic surgeon, but as a geologist and palæontologist. He was president of the Clinical Society of London, at a meeting of which he presided on the evening of February 8th. He was to have delivered the Hunterian oration on "John Hunter the Biologist," on February 14th, but was prevented by the illness which resulted in his death on the 19th.

## BOOKS AND PAMPHLETS RECEIVED.

Vaginal Extirpation of the Uterus and Adnexa in Pelvic Suppuration and Septic Puerperal Metritis and Peritonitis. By H. J. Boldt, M.D., New York. Reprint. 1895.

Medico-Chirurgical Transactions published by the Royal Medical and Chirurgical Society of London. Vol. LXXVII. (Second series. Vol. LIX.) London: Longmans, Green & Co. 1894.

Surgical Pathology and Therapeutics. By John Collins Warren, M.D., Professor of Surgery in Harvard University; Surgeon to the Massachusetts General Hospital. Illustrated. Philadelphia: W. B. Saunders. 1895.

# Original Articles.

## SUDDEN DEATH BY THE RUPTURE OF THORACIC ANEURISMS PREVIOUSLY UNRECOGNIZED.[1]

BY F. W. DRAPER, M.D.,
*Medico-Legal Pathologist, Boston City Hospital.*

The autopsy-room of a hospital is specifically dedicated to the study of morbid anatomy. Its air is heavy with the effluvia of disease, decay and death. Its ministering spirits, with erudite touch and penetrating vision, search out the secrets of nature. Infection, inflammation and degeneration render here their final account. The pathologist supplies the closing chapter in the natural history of diseases whose earlier incidents are written in the clinical records relating to the living patient. The first and the last observations upon the human subject, in connection with his fatal illness, sometimes fail to connect harmoniously, and the ward bed and the marble slab sometimes present details which do not blend. Nevertheless, the aid which clinical medicine derives from the anatomical amphitheatre of the hospital is too obvious to need elucidation. The aphorism of Dr. Holmes that, while pathological anatomy teaches a great deal, "it is, after all, like inspecting what is left of the fireworks on the morning of the fifth of July," is less true today then when he wrote it. Histology and bacteriology now lend their effective aid to the grosser methods of observation, and pathology co-operates heartily with clinical medicine in the advancement of medical science.

But the autopsy-room of the City Hospital of Boston has not exhausted its usefulness, great as that service is, by discovering and recording the anatomical appearances which the hospital patients bring to the dead-house after a period of observation in the wards. Through the courtesy of the trustees, and with the indulgent and cordial assent of the pathological department, autopsies are made here upon the bodies of such victims of crime or such subjects of sudden and suspicious deaths in the southerly portion of Suffolk County as require an official medical examination. It thus happens that many interesting medico legal problems are presented here for solution. The privileges bestowed upon the medical examiner by the hospital place him under continued obligation. It is in recognition of this debt and of the very great help in the medical examiner's work which it implies that he accepts the invitation to contribute to these pages.

In fulfilment of this design, I have selected from notes of autopsies performed by me at the hospital a series of cases of thoracic aneurism. These cases are all instances of sudden death. Their subjects have this in common, that the disease of the aorta which ended life so suddenly had not been suspected or recognized or been made the occasion of medical observation or treatment. In this respect they illustrate a rule about which all writers are agreed, that a large number of aneurisms declare no sign of their existence, and that they are revealed by the post-mortem examination only. They show how imperceptible and with how little injury to health may be the growth of even a large aneurismal tumor. Finally, they are examples of the usefulness of autopsies in determining accurately the causes of tragically sudden death, and in taking the obscurity out of cases which are too often dismissed with a convenient expression like "heart disease" or the more objectionable but equally convenient phrase, "heart failure."

[1] This paper will appear in the Boston City Hospital Reports, Sixth Series.

Case I. Josephine S., aged thirty-seven, a hard-working charwoman, entirely free from disabling disease though a moderate user of alcoholic drinks, was found dead, lying in a natural attitude on the outside of her bed, with her outer clothing removed. She was last seen alive twenty-three hours previously. Her body when discovered was cold, and rigor mortis was fully devoloped. Her acquaintances supposed her to be a healthy woman.

*Autopsy.* — The body was spare but not emaciated. The countenance presented no suggestion of a painful death. The surface was pale.

When the sternum was lifted the left pleural cavity was found filled to its fullest capacity with yellow serum and dark-red, firm blood-clot, the whole mass measuring two quarts. This blood had escaped from a rupture in the inferior wall of an aneurism of the aortic arch. The aneurismal tumor projected posteriorly opposite the fourth, fifth and sixth dorsal vertebræ, and had eroded the vertebral bodies and intervertebral cartilages in this region to the depth of a quarter of an inch at the deepest, leaving the general surface roughened and irregular. The aneurismal sac was ovoid in shape, and measured four inches long, three inches wide, and one inch and a half thick. Within it were masses of firm coagulum, with dry, shreddy layers of fibrin.

The rupture was at the lowest part of the sac. The opening was valvular, from above downward. Externally it appeared as a rent in the aneurismal wall just below the root of the left lung, the lesion being irregularly crescentic, with the concavity downward, and with an opening at its uppermost part admitting a large probe.

The heart was normal. The left lung was compressed, dry and pale; the right lung was of normal volume, and moderately reddened. The other organs showed nothing noteworthy.

Case II. John J., aged forty-three, intemperate and shiftless, had not been heard to complain of any ailment until the morning of the day of his death. At this time he procured from a druggist a "plaster for his chest." About three hours later he was seen on the street, looking so distressed that an acquaintance remarked upon his appearance, and J. replied, "I *am* sick." Presently he went into a store and sat down; he quickly became stiffened in a convulsion, was rigid and unconscious, breathed stertorously, gasped a few times and died, the whole transaction occupying but a few minutes.

*Autopsy.* — The surface of the body was very pale; there were scarcely any lividities of the skin. The mucous surfaces were blanched. Cadaveric rigidity was pronounced.

The heart was healthy and empty. The lungs were normal, though rather anemic.

In the abdominal cavity were sixty-six fluid-ounces of mingled fluid blood and blood-clot. The source and course of this hemorrhage were found to be as follows: At the junction of the transverse and descending portions of the aortic arch there was a projecting aneurism, with thin walls, the tumor being the size of an English walnut. This outgrowing sac had ruptured at its outer

part, and the escaping blood had dissected its way inside the sheath of the aorta, leaving a blood-stained track in the posterior mediastinum. It had then torn through the diaphragm between the aorta and the esophagus. It had then turned to the right, across the cardiac end of the stomach posteriorly, and here, tearing away the peritoneum of the stomach over a surface two inches by three inches, it had broken through and discharged into the general peritoneal cavity.

All the organs of the abdomen were structually healthy. The brain was pale and wet.

CASE III. Winifred M., aged sixty-five, a homeless wanderer, depending on street alms and the poor hospitality of her acquaintances to keep her from starvation, was not known to be the subject of any disease, although she had been heard once to make an allusion to her "heart" as the seat of some indefinite disorder. On the day before her death she was on the street from morning till night, and returned to her temporary lodging in her usual health. Her bed was prepared for her on the floor, and she went to sleep at ten o'clock. In the night she shifted her bed from the corner of the room to the middle; and here at 7 A. M., she was found dead without any indication of distress in her attitude or countenance.

*Autopsy.* — The body was emaciated. The surface was pale, with some cadaveric lividities upon the dependent parts.

When the sternum was removed, the pericardium was observed to be distended, bulging outward, and freely exposed; it contained ten fluid-ounces of blood, fluid and clotted. The heart was moderately and symmetrically enlarged; its muscle was readily crushed by finger pressure. The aortic valves were moderately thickened at their free border, but were competent. The mitral valve was normal.

The aorta, beginning at a point near its origin, was dilated; the enlargement was rather greater on the upper or convex border, was fusiform in shape, without sacculation, and in size and contour resembled a lemon. The wall of the dilated artery was thinned to an appreciable degree; and the intima, not only of the arch, but of the entire thoracic portion as well, showed large patches of atheroma, some of them with calcareous plates.

Immediately to the right of the innominate artery, on the upper curve of the transverse part of the arch, there was a rent in the intima of the aortic wall, transverse in direction, and one inch long; the edges of the rupture were irregularly indented, but the general direction was linear and straight. The situation of this internal rent was above the line of the pericardial attachment. But the blood, instead of forcing its way directly out at this point, had dissected a passage backwards and downwards, along beneath the outer coat of the artery, and had found its entrance into the pericardial enclosure, through a longitudinal rent an inch and a half long, and two inches below its rent of exit through the inner coat of the aorta. The tissues between the two ruptures were infiltrated with blood.

Both pleural cavities were obliterated by old pleuritic adhesions. Both lungs were engorged. There was no blood in the bronchi.

There was no sign of disease about the abdominal or pelvic organs. The brain was normal in appearance.

CASE IV. Joseph F., aged seventy-five, was alive and well at 6.30 A. M., when his room-mate left him at home. He had been out of doors through the previous day, and was not known to have any ailment. At 1 P. M. he was found dead on the floor of his bedroom. He was in a kneeling posture, with his forehead resting on the floor in front of him. His trousers were down about his thighs.

*Autopsy.* — The body was spare. Rigor mortis was fully developed. The face was livid.

The pericardium was distended and bulging, showing a dull purple color through its wall. It contained twelve and a half fluid-ounces of blood, fluid and clotted, the clot being soft and of a dark color.

The heart was normal in appearance; its valves were all competent and in healthy condition.

The aorta was dilated; its intima was thickened and roughened from the semilunar valves to the iliac bifurcation, the result of atheromatous degeneration.

Just above the anterior coronary orifice, in the ascending portion of the aortic arch, there was an aneurismal sac projecting outward and to the right, and having a cavity of about the size and shape of a large olive. At the outer aspect of this small sac was a crescentic, valve-like rent, extending downward into the pericardium. The external lesion in the outer coat of the vessel was curvilinear, three-quarters of an inch long. The orifice through which the blood escaped through the intima was irregularly rounded and of the about the size of a pea.

The lungs were injected. The spleen was softened almost to a condition of diffluence; it was small, dark red, and adherent to the adjacent tissues by the products of former inflammation. The stomach and intestines were normal. The liver showed the appearances of fatty infiltration. The kidneys represented chronic interstitial inflammation. The brain was unnaturally moist.

CASE V. Leodegar M. L., aged fifty-one, was found dead in his room in a hotel, lying back against some pillows on a lounge, one foot on the lounge and the other hanging off its edge. An hour and a half previously he had walked up the three flights of stairs leading to his room, and seemed in his usual good health and spirits when he entered the hotel office.

He was the subject of a lateral curvature of the spine, and to his acquaintances this appeared to be his only disability. It was ascertained from one his intimate friends, however, that for many months he had had pain in his shoulders and in the right sub-clavicular region, to such a degree that he had talked of sudden death as a possible termination of his trouble. The last evening of his life he had seen a well-known and experienced physician who gave him some advice of a general nature, but did not entertain the idea of any serious organic disease.

*Autopsy.* — The body was emaciated. The countenance indicated distress. There was a marked lateral curvature of the spine in the dorsal region, which gave also a "pigeon-breasted" deformity to the sternal region.

When the sternum was removed, the pericardium was observed to be prominent, distended and elastic, showing dark contents through its translucent wall. It contained sixteen fluid-ounces of blood, fluid and clotted. The source of this hemorrhage was found to be a minute rupture in the wall of an aneurism of the ascending and transverse portions of the aortic arch. This portion of the artery was enlarged to about twice its normal size; its intima was rough and thick. From

the outer and upper part of the ascending section a secondary projection was found, the result probably of a former rupture of the aortic wall. The wall of this smaller sac was relatively thin, and was lined with loose, rather dry clot. At its upper border, as close as possible to the pericardial line, was a minute orifice, hardly admitting the head of a small probe. The size of the sac was that of a large apricot.

The heart was firmly contracted and empty; its structure was normal. There was no effusion of blood outside the pericardium. The lungs were injected; in other respects they were normal. The spleen and kidneys were reddened. The other organs were healthy in appearance.

Case VI. John H. H., aged fifty-one, ran to catch a train which was about to start. He entered a car and took his seat. Presently he was observed to be ejecting blood copiously from his mouth; his death quickly followed. It was learned from his kindred that he had been ailing many months with some obscure symptoms which represented "heart disease" to him; but he had not been incapacitated for the performance of his daily duties. He himself had anticipated sudden death.

*Autopsy.*— The body was sparely nourished. The surface was pale. Post-mortem rigidity was pronounced. Dried blood was in the nostrils, on the mustache and beard, and on the lips and teeth.

On raising the left lung, a firm adhesion was found posteriorly, near the apex, tying the lung to the spinal column and the adjacent ribs, over a surface two inches in diameter. When the heart, lungs, esophagus, and aorta were removed together, this area of adhesion was found to be a portion of the wall of an aneurism of the thoracic aorta, involving the lower section of the descending portion of the arch as well. The aneurism consisted almost wholly of the dilated arterial walls, much thinned; there was no deposit of fibrinous layers within it. The lining surface was rough from atheroma, with projecting calcareous plates. The part next to the spine, where the adhesion was found, had eroded the bodies of the vertebræ to a slight extent. Just in front of this eroded space, the aneurism had ruptured in a forward and upward direction into the upper lobe of the left lung. At the point of rupture, the wall was thinner than elsewhere. The rent was irregular and somewhat stellate in shape, and admitted the tip of the finger. The size of the aneurismal cavity was about that of an orange.

The entire arch of the aorta was considerably dilated, and its intima was roughened and thickened. The aorta below the aneurism also showed atheromatous changes, without dilatation.

The heart showed no change whatever from the normal condition, in size, thickness of its walls, color of its muscle, or state of its valves. Its cavities were empty, and its left ventricle was contracted.

The left lung at the point opposite the aneurismal rupture showed an excavation half an inch deep and of irregular periphery; all around this the tissues were infiltrated with blood, giving an engorged appearance to the entire upper lobe, and, to some extent, the upper part of the lower lobe also. There was no blood in either pleural cavity. The right lung was somewhat reddened. The trachea and bronchi contained blood, and there were about four fluid-ounces of clotted blood in the stomach.

The other organs showed nothing noteworthy.

Case VII. An unknown woman about sixty years old, presenting the aspect of a homeless street-beggar, was seen to stagger across Atlantic Avenue and to drop helplessly upon some store steps. She was bleeding from the mouth. She was insensible when the bystanders reached her, and presently she died. The front of her dress was blood-stained, but the evidences of very profuse hemorrhage were wanting. The body was not identified, and therefore all knowledge of her health previous to her attack on the street is lacking.

*Autopsy.*—The following appearances were the only ones of immediate interest: The upper portion of the thoracic aorta, just below the arch, presented an aneurismal dilatation of the size of a large orange; it was located opposite the bifurcation of the bronchi. Portions of the wall were very thin, while other parts were much reinforced by layers of fibrin. The aneurism had ruptured into the bronchi. There was no blood in the pleural cavities. The lungs were engorged, and the bronchi and trachea contained frothy blood. The heart was enlarged, the hypertrophy being chiefly on the left side. The aortic valves were thickened, and behind them were small calcareous plates of great density. The aorta was dilated just above the valves, and at one point in the ascending portion the walls had yielded, forming a depression one inch in diameter and a quarter of an inch deep. The intima of the aorta throughout its extent was thick and rough.

Case VIII. Michael F., aged seventy-seven, was seen to topple over as he was in the act of crossing Park Square at 10 o'clock A. M. Medical attendance was immediate, and the man was placed in an ambulance and transferred quickly to the City Hospital. On his arrival he was in a state of profound collapse. He gave his name and address, but no other facts. He died at 10.45 A. M., three-quarters of an hour after the seizure. His family stated later that they had had no knowledge of any disability of which he was the subject.

*Autopsy.*— The body was spare, and its surface was pale and exsanguine. The pericardium, prominent and bulging when first exposed, was found to contain a pint and a half of fluid blood and soft clots. The heart was moderately enlarged, and its left ventricle showed a thickened wall; its valves were normal.

The arch of the aorta was much dilated, its lumen being expanded into a cavity of the size of a large lemon. In the descending portion of the arch, just behind the pulmonary artery, there was a transverse rent in the intima, two and a half inches long, linear, straight, but not penetrating into the pericardium; the most careful exploration failed to discover any communicating opening, and the conclusion was that the leakage seemed to be by filtration through the outer layer of the aorta's wall. The inner coat of the aorta was thick and rough, and the lumen of the artery below the arch was narrow and irregular. The tissues in the posterior mediastinum and in the posterior parts of both lungs were fully infiltrated with blood; the lungs elsewhere were edematous. About a pint of thin, bloody serum was found in the pleural cavities.

The spleen, pancreas, stomach, and intestines were normal. The liver represented passive congestion. The kidneys were typical specimens of chronic interstitial inflammation.

CASE IX. Chipman H. S., aged thirty-seven, was admitted to the City Hospital about 10 o'clock P. M., January 20th, at the request of a physician who stated that the man was suffering from paraplegia, in some way connected with two doses of a poisonous drug prescribed by an irregular practitioner. It appeared from S.'s story that he had not suffered any disability until the forenoon of that day; at this time his "legs gave out" and he sank to the floor of his room. He said he had great pain in his back, not localized, but general. There was also an account of vomiting and of the passage of bloody matter in his dejections, and this lent some aid to the theory of poisoning.

At the hospital a loud souffle was heard over the heart. The man was restless, very thirsty, and disinclined to talk. Toward morning, January 21st, he sank into a stupor and had some equivocal convulsive movements. He gradually failed, and died at 12.05 P. M., that day. The hospital diagnosis was not conclusive, but cerebral hemorrhage seemed the probable condition.

*Autopsy.* — The body was well nourished and of good muscular development. Cadaveric lividities were more than ordinarily pronounced on the lateral and dependent parts.

The heart was hypertrophied without dilatation. Its valves were all in normal conditiou. The myocardium was pale but firm. The aortic arch was dilated moderately and displayed old endarteritis. The aorta below the arch and to within five inches of the diaphragm was normal. At this point, just above the diaphragm, there was an aneurism of the size and shape of a large kidney. Its anterior wall was adherent to the posterior surface of the lower lobe of the left lung. Its posterior wall was the exposed and eroded bodies of the eighth, ninth and tenth dorsal vertebræ; the necrosis of these bones had gone so far as to leave upon the front and left side deep excavations into which the forefinger could easily be laid, leaving a thin shell of denser bone at the upper and lower margins, with the intervening cartilages in place. Around this bony destruction the aneurism was firmly attached to the bone at either side. The contents of the sac consisted of laminated and rather dry, easily broken blood-clots, brownish-red in color, through which ran a tortuous blood canal of the size of the finger.

The lungs, spleen, stomach, intestines and liver were healthy. The kidneys were injected. The brain was of normal appearance.

The spinal cord was taken out from behind. The vessels of the dura were injected throughout the dorsal region. The body of the tenth dorsal vertebra, in front of the dura, was carious and dark-red. The ninth vertebra showed less change. There was a marked excess in the spinal fluid, fully distending the cavity of the dura. The vessels of the pia were fully injected, especially along the anterior surface of the cord. In the anterior and left lateral columns of the cord, near the affected vertebræ, there was a marked degree of reddening, in contrast with the color above and below; but the consistence of the cord was normally firm.

CASE X. Patrick J. S., aged thirty, a tailor by trade, had been ailing many months with an obscure pain in his right side; and, also, at times, with what he had called "neuralgia of the heart." He had received medical treatment for "liver complaint." He had kept at his work, without interruption, up to the hour of his death. The first symptoms of his approaching end were pallor and great dyspnea. He entered a liquor store, where he was known, and sat down "panting for breath." A carriage was called, and the man was placed in it and started for the City Hospital. He died on the way.

*Autopsy.* — The body was lean. There was rather more than the usual degree of cadaveric lividity.

The left pleural cavity contained ten fluid-ounces of thin, red fluid. Both lungs were, in general, gray in color, and were thoroughly edematous and sodden. The right lower lobe and left upper lobe were injected more than other parts; but the reddening was very moderate in degree. The pericardium contained five fluid-ounces of straw-colored serum. Both ventricles were firmly contracted; their walls were not thickened. The several valves were normal.

An aneurism projected from the anterior wall of the aorta, immediately above the semilunar valves. Its size was that of a small orange. Its wall was translucent at its most projecting part; elsewhere it was lined with friable coagula, or masses of fibrin, and was opaque and thickened. The orifice of entrance to the sac, seen from within the aorta, was one inch above the right semilunar valve, and appeared as a round aperture through the wall of the vessel; the opening admitted the tip of the forefinger.

The aneurism was so located that it overlay and nearly obliterated the lumen of the pulmonary artery just above its origin at the heart. The aortic arch was moderately dilated, and its intima was thick and uneven.

The other organs of the body displayed nothing noteworthy.

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In addition to the features which the foregoing cases have in common (the suddenness of their termination and the fact that the development of serious aortic disease had never been discovered or treated), these deaths suggest some points of special interest, among which the following may be deemed worthy of mention:

(1) The rupture of an aneurism of the aorta, although it sometimes has physical exertion as its exciting cause (Cases V and VI), does not of necessity require such a cause (Cases I, III, VIII).

(2) The pericardium, more often than other cavities, receives the escaping blood; and, in these cases, it is not the amount of the hemorrhage which kills, but the inhibition of the heart's action, by compression of the cardiac walls, in a sac filled to distension with blood (Cases III, IV, V and VIII).

(3) Deaths by aneurismal rupture, although deserving the description "sudden" are not instantaneous; an appreciable interval (Case VI), and, sometimes, a very considerable period, elapses between the attack and its termination (Cases VII and VIII).

(4) A death by aneurismal rupture is not generally a painful one (Cases I, III); although it may leave evidences that it is so in some cases (Cases IV and V).

(5) The escaping blood in an aneurismal rupture does not always follow the line of least resistance (Case II); and, sometimes, it makes a devious dissection to reach an outlet (Cases III, IV).

(6) Its small size and fusiform shape do not give

an aneurism immunity from sudden rupture (Cases II, III, IV, VIII).

(7) An aortic aneurism is not necessarily an affair of advanced life (Cases I, II, V and VI).

## THE ANTITOXIN TREATMENT FOR DIPHTHERIA.[1]

### A CLINICAL REPORT.

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THE object of the present paper is to report the results of the treatment of diphtheria by antitoxin in a series of cases in my recent service in the contagious wards of the City Hospital. This service comprised the two months of December and January. Through the enterprise and liberality of the trustees a supply of antitoxin was secured about December 12th, and the first injection was made on that date. The first twenty injections were made with the solution prepared under the direction of Behring and Scherer, and the remainder were with the product of Dr. Gibier, from the Pasteur Institute in New York. Most of the former series were made with the "No. 1" strength, of which ten cubic centimetres, the dose usually given, contains 600 immunization units. In a few cases the No. 2, representing 1,000, and the No. 3, representing 1,500 antitoxin normals, were used. The Gibier product was furnished in two strengths, marked 1–50,000 and 1–80,000, the latter of course the stronger, as one part was supposed to immunize an animal of 80,000 times its weight against what would be to it a fatal dose of diphtheria toxine. Dr. J. L. Morse, who made some tests of this material found that a specimen marked 1–80,000 actually immunized a guinea-pig of 11,500 times its weight against ten times its fatal dose of toxine.

The treatment, other than antitoxin, employed in the cases to be reported, was frequent feeding, alcohol, iron and cardiac stimulants as required. Locally, irrigation was practised with normal salt solution, or diluted Dobell's solution, whenever it could be done without provoking great resistance from the patient. When violent resistance was encountered which seemed to exhaust the patient's strength, irrigation was omitted.

Before passing to the consideration of the antitoxin cases it is worth while to say a word regarding the cases which were treated during the same interval without antitoxin. This latter group, rejecting all which did not show the Klebs-Löffler bacillus, comprised 40 cases. The reasons why antitoxin was not employed in these cases were as follows:

In nine cases, lack of serum; that is, in nine cases which were suitable for treatment the material was not at hand. Of these, three died.

In six cases, lateness in the disease. In these the patients had been ill five days or more when they came under treatment, and in the scarcity of the material it seemed wise to withhold it in favor of more promising cases. It is to be noted that it was the lateness and not the gravity of the disease which governed this selection. Three of these patients died, and three recovered.

In five patients antitoxin was withheld because they entered moribund. All these died within two days of entrance.

In two cases, antitoxin was withheld because of a negative report from the bacteriologist on the first examination, although the second examination showed the diphtheria bacillus. Of these two cases one died. A corollary of this is that in cases clinically diphtheria it is not well to wait for a bacteriological verdict before using the remedy, and so to lose valuable time.

In 18 cases the remedy was withheld because of the mildness of the disease and the probability that the cases would recover without antitoxin. They all did recover.

On the whole it may be said that the group of 40 cases represented rather less than the average gravity of the disease. The deaths were 12, or 30 per cent., and the recoveries 28, or 70 per cent. Three of the deaths were intubation cases, and no intubation in this group recovered. It may be said in passing that there were five other non-antitoxin cases which had laryngeal membrane and failed to show the diphtheria organism, of which two recovered without operation, two with operation, and one died after operation.

The average duration of the residence in the hospital of the 28 non-antitoxin diphtherias which were discharged well, was fourteen days.

Turning now to the group of antitoxin cases, I have to report 80 cases of diphtheria treated by this remedy between the dates above mentioned. As a matter of fact, 91 cases which would clinically be classed as diphtheritic received injections; but I have excluded from the list all who failed to present the bacteriological evidence of the disease. In reality, I believe some of them to have been, notwithstanding the negative report of the bacteriologist, true diphtheria; and their inclusion would of course raise the percentage of recoveries of the treatment. For example, among the 11 cases were two of membranous laryngitis, intubation and recovery, and two children with membranous throats, one of them septic, who had brothers or sisters in the hospital at the same time, with undoubted diphtheria, a fact strongly presumptive of the diphtheritic nature of the membrane in the other children.[2] In order, however, to disarm criticism, I exclude all these cases; and we have left 80 patients clinically and bateriologically suffering from diphtheria. The cases represented rather more than average severity, especially during the earlier part of the series. In view of the scarcity and expensiveness of the material, such cases only were selected for treatment as were of sufficient gravity to make it reasonably likely that they would prove to show the diphtheria organism.

Of these 80 patients, 13 died, a mortality of 16 per cent. A study of these fatal cases may be of interest and profit, and I will therefore briefly describe them. As to the first two, there is considerable doubt as to whether they should be considered deaths due to diphtheria, though I have included them in the list.

CASE I. G. B., male, age six. Entered December 9th. Injected December 12th, on the seventh day of his illness. Membrane disappeared in two days, but returned. Reinjected December 18th. Contracted scarlet fever December 21st, from which he died Jan-

[1] Read before the Boston Society for Medical Improvement, February 18, 1895.

[2] Of the occasional failure of bacteriological evidence of diphtheria, I would cite an instance in one child (Mullaney), who had membrane on both tonsils and palatine arch, and a nasal discharge. Two cultures from the throat showed pure staphylococcus aureus; two from the nose also failed to show the diphtheria organism; and, finally, a fifth culture, twelve days after entrance, showed for the first time the Klebs-Löffler bacillus, and that in the nose only. This patient is living at the present writing, twenty-two days after his first injection, but is not yet well. He is, however, the only one of the non-fatal cases which is not convalescent.

uary 5th, septic, but two days after Klebs-Löffler bacilli had disappeared from his throat, twenty-four days after his first injection, and thirty-one days after the onset of his diphtheria.

CASE II. A. H., boy, age four years. Entered January 21st. Period of disease unknown. Injected January 22d; Gibier solution, 1–50,000, 20 c. c. Klebs-Löffler bacilli; then disappeared in four days. Then irregular, rising temperature; scarlet fever; broncho-pneumonia. Died February 7th, seventeen days after entrance.

CASE III. N., age twelve. Admitted January 24th. Membrane tonsils, pharynx, nose. Enlarged glands, intense sepsis. Injected January 25th, second day of illness; 25 c. c. Gibier solution, 1–50,000. Second injection January 27th, Gibier solution 10 c. c. Hemorrhages, nose and mouth. Membrane much diminished on fourth day, but what is left not well demarcated. Died January 30th. Klebs-Löffler still present.

CASE IV. A. B., female, age three. Sick on or before December 8th. Injected December 12th. Behring No. 1, 10 c. c. Died in five hours. Profound sepsis. Membrane tonsils, pharynx and nose.

CASE V. A. M., female, age eight. Taken sick December 6th. Injected December 13th. Behring No 1, 10 c. c. Membrane tonsils and palate. Reinjected Behring No. 1, 5 c. c., December 21st. Klebs-Löffler and streptococci. Lived twelve days after first injection. Membrane nearly disappeared, later returned. Died of heart-failure.

CASE VI. D. M., female, age three. Admitted December 19th. Duration unknown. Intubed December 20th, and not injected because thought to be moribund. Being still alive December 21st, injected as forlorn hope, *very late* (unknown how late) Behring No. 2, 8 c. c. Same day tube removed; broncho-pneumonia. Died December 22d.

CASE VII. A. J., a female, age ten months. Nursing child, both parents in hospital with diphtheria. Injected December 29th, five days after onset. Sepsis profound. Membrane tonsils, pharynx and nose. Vomited everything. Died December 31st.

CASE VIII. C. O'D., male, age two. Sick three days. Entered December 31st. Intubed at 11 A. M. Gibier, 1–50,000, 6 c. c. Died 11 P. M., same day.

CASE IX. V. E., male, ten months. Bottle fed. Sick eight days. Injected Gibier, 1–80,000, 7 c. c., January 3d, and 6 c. c., January 5th. Membrane much diminished after second injection. Later returned; vomited everything. Died January 11th.

CASE X. A. N., male, twenty months. Mixed infection of Klebs-Löffler and streptococci. Sick three days. Injected Gibier, 1–80,000, 7 c. c., January 3d, and 6 c. c., January 4th. No improvement whatever. Died January 6th.

CASE XI. J. C., male, age fifty-five. Had been "spitting up pus" three or four weeks; cause of this unknown. Klebs-Löffler and streptococci. Injected, December 28th, 14 c. c. Gibier, three days after onset, and December 30th 8 c. c. Sepsis, hemorrhages, cyanosis, delirium, obstruction, tracheotomy. Death January 1st. No improvement here. Extension downward. See autopsy, *infra*.

CASE XII. J. F., male, age five. Sick four days. January 17th, injected 20 c. c. Gibier, 1–80,000. January 18th, reinjected 16 c. c. Gibier, 1–50,000. January 19th died. Profound sepsis, hemorrhages. Membrane in throat, palate and nose. See autopsy, *infra*.

CASE XIII. H. S., age three. Entered January 17th, and was intubed at once. Injected, January 18th, Gibier, 1–50,000, 16½ c. c., eight days after onset. Entered partly unconscious. Pneumonia same day. Died day of injection.

It will be seen that of these 13 cases four died within the first twenty-four hours after the first injection, and two others died within the second twenty-four hours. The average time which elapsed in these fatal cases between the onset of the disease and the injection was almost exactly five days, a period so long as to seriously invalidate the efficacy of the serum treatment. On the other hand, the treatment was given early in two or three of the cases, and the conditions seemed those which ought to have led to better results than those attained.

The extent of the invasion in some of the fatal cases is illustrated in two autopsies.

CASE XII. Autopsy twelve hours after death showed "diphtheritic inflammation of the tonsils with ulceration and necrosis, hemorrhagic broncho-pneumonia and purulent bronchitis of both lungs, and discrete patches of fibrinous pleuritis, general acute lymphatic hyperplasia, acute splenic tumor, cloudy swelling of kidneys, liver and heart muscle. . . . Bacteriologically, the tonsils showed many colonies of Klebs-Löffler and short, thick bacilli. In the lung were very many colonies of typical Klebs-Löffler and a few larger colonies of streptococcus pyogenes from broncho-pneumonia. The heart's blood showed a few colonies of typical streptococci, and the kidney a few typical Klebs-Löffler and streptococci."

CASE XI. Autopsy, adult. "Anatomical diagnosis — tracheotomy wound: diphtheria affecting uvula, soft palate, left tonsil, larynx, trachea and bronchi; emphysema, broncho-pneumonia. Bacteriologically: Lung, broncho-pneumonia, moderate number of colonies of colon bacillus, a few of diphtheria. Larynx, many colonies of Klebs-Löffler. Brain, a few colonies of colon bacillus. Heart's blood, sterile. Liver, sterile. Kidneys, a few colon bacilli."

Among the fatal cases were three of intubation and one of tracheotomy. Of the intubations, in one the injection preceded the operation, and in two the intubation preceded the injection. The tracheotomy was performed three days after the first injection, and was a fruitless attempt to ward off an asphyxia due to pulmonary extension and sepsis.

In one case of intubation where the injection preceded the operation, recovery took place. The tube was left in the larynx only three days.

Combining now, the 80 cases of diphtheria treated by antitoxin with the 40 treated otherwise, we have a total occurring in the period covered, of 120 cases with 25 deaths, a mortality of a little less than 21 per cent. The average hospital mortality from diphtheria is from 45 to 50 per cent. For the corresponding period in the previous year, December 12, 1892, to January 20, 1894, there were 84 cases of diphtheria with 44 deaths, a mortality of 52 per cent.

We have thus, I think it must be admitted, evidence of a very substantial reduction in the death-rate of diphtheria under the antitoxin treatment. But the mathematical expression of the fact is not to my mind the most striking one. The general appearance of the

patients, the look of the ward is different from what it formerly was. It is a common thing to see a child within 24 hours after an injection, sitting up in its crib and playing with its toys. In cases where I have wished as a safeguard to the heart, to keep the child recumbent, it was very difficult to do so, the buoyancy of improving health asserting itself in this way unless a nurse is constantly at hand to restrain the child from sitting up. There are a less number of children than formerly lying about in that dull, comatose condition of profound, advancing sepsis, and the aspect of the ward is more like that of a convalescent hospital than of a lazaretto. There is less steam needed for the relief of choking patients. The proportion of operative cases is, I think, less. Five of the cases, as I have said, came to operation, and the mortality of them was large, 80 per cent.; but four others who entered croupy, with labored breathing and retraction, and who seemed destined to an early operation, recovered without that necessity.

The duration of the residence in the hospital of the antitoxin-treated cases, furnishes an interesting comparison with that in the cases not so treated. As I have already said, the latter group showed an average hospital residence of 14 days for the cases which recovered. In the antitoxin group, the average hospital residence of 58 cases which recovered and were uncomplicated with other diseases (for nine children developed either scarlet fever, measles, chicken pox or some other affection which increased their hospital residence) was eleven days. Hence arises the deduction, interesting from the financial point of view, that the hospital saved in this treatment an average of three days' board for each patient who recovered, which was enough to a little more than pay for the antitoxin used. Moreover, it may be mentioned in this connection that the omission in these cases of other treatment often pursued made a still further saving, the one item of peroxide of hydrogen (none of which was used in any of the cases) having cost the hospital about $550 the previous year. Thus it is pleasant to see how a liberal policy works even a financial saving!

The patients were all retained in the ward until the disappearance of all visible membrane and two negative reports from the bacteriologist as to the existence of the diphtheria bacilli. These bacteriological examinations were, so far as possible, made daily and the record shows the date at which the membrane was gone, and the first permanent disappearance of the bacilli. From this it appears that the membrane disappeared on the average a little earlier than the bacilli, the figures being six and one-sixth days and seven days respectively, from the date of the first injection.

But the range of variation was very great, and the membrane was by no means always the first to disappear; it was only so in the *average* of the cases of recovery (that is, in the cases where it had full time for its evolution). The earliest date of the complete disappearance of membrane after the injection was one day, which was noted in one case; but in this the bacilli persisted for five days. In three cases the Klebs-Löffler bacilli lasted but one day after the injection, but in these traces of membrane persisted for three, four and five days respectively, after the injection. It was not uncommon for the bacteriologist to report a single swab as having no Klebs-Löffler when the next day's examination again revealed the organism. Hence the importance of requiring two consecutive negative reports before considering the case as well.

In a few instances a temporary interruption in the supply of material forced upon me a sort of control experiment. For example, a girl, aged two, entered January 14th. Had been sick five days. Serum was not at hand, and the membrane increased under observation till January 16th, when the material was obtained and she was injected. On the 18th both membrane and bacilli were absent, and she was discharged well on the 22d. A similar case was that of a boy, aged six, who entered December 26th. Sick two days, with a good deal of membrane, which grew steadily worse till the material arrived on the 28th, when he was injected. Six days later his membrane had disappeared, and he was up and dressed, though the bacilli persisted for fifteen days. A third child, a girl, aged eight, entered December 31st. Sick one day. She was profoundly septic; had membrane on the tonsils and pharynx; and no improvement occurred up to January 3d, when she was injected for the first time, and again on the 5th. The bacilli had disappeared on the 9th, but the membrane persisted till the 14th, and she was discharged well on the 16th.

Twenty-two of the cases were injected a second time, at an interval of one or two days from the first treatment. Seven of these reinjections were in patients who died. The reasons for such reinjections was failure of membrane to be thrown off, failure of a sharp line of demarcation about it, extension of membrane, and increase in the gravity of the symptoms.

Besides the 102 injections already accounted for, five more were made for purposes of immunization. Three were upon house-officers and two upon nurses, all of whom were coming into the wards for the first time or after a long interval. None contracted the disease, and all had a slight local dermatitis at the site of the puncture after a few days. One of the house-officers suffered from slight malaise and headache the day of the treatment. One patient, a girl of eleven, had received from a physician outside a prophylactic injection on the occasion of the appearance of another case of diphtheria in the household, and developed the disease exactly three weeks after the immunizing injection was given. It is well known that the immunity conferred by antitoxin is of comparatively short duration, and that on renewed exposure after three or four weeks, a new protection should be given. This I did not do in any of the five cases mentioned above.

A few words regarding the technique of the injections. The syringe used for the most part was of glass with asbestos packing of the piston which allowed the piston to be disinfected by fire while boiling water was used for the barrel and needle. This instrument proved more convenient than the Koch syringe which was employed at first.

As to the site, the interscapular region was at first made use of, but was speedily abandoned on account of the discomfort from lying on the seat of the puncture. A few injections were made in the flank, but the most advantageous place seemed to be the outer and front aspect of the thighs, which were not exposed to pressure; absorption was rapid. The skin at the site selected was prepared for injection by scrubbing with soap and water and later with corrosive solution. No pressure or massage of the tissues was practised. The puncture was closed with adhesive plaster.

The dose of Behring's solution was usually 10 c. c. of the No. 1 solution. The No. 2 and No. 3, of higher strength, were used in somewhat reduced doses, according to the gravity or especially the lateness of the case. The earlier doses of the Gibier solution were small — too small, 10 to 15 c. c. Later I used 20 to 25 c. c. of this, and if reinjection was employed about one-half the quantity.

The first good result from injection was usually seen within twenty-four hours in the form of a whitening and a dense milky color of the membrane, and its sharper line of demarcation. The exfoliation of membrane was generally most marked in the second twenty-four hours. A fall of temperature, although often occurring, seemed to be less significant than general improvement in the condition, for many of our worst cases of septic diphtheria have but slight temperature elevation.

Of unfavorable results from the injections the most annoying have been cutaneous eruptions. So far as I know no case of urticaria occurred after the use of the Behring serum which was employed in the first 20 cases, though this exemption may have been merely a coincidence. In the other 60 cases, 13 are known to have developed urticaria, in some of whom it was very severe and painful. As many patients were discharged early, in four to seven days after the injection, and as the urticarial affection does not appear often for a week or more, it is probable that a larger proportion had this skin eruption than the 21 per cent. who are known to have had it. A part of the difference in this regard between the two kinds of serum may have been due to the fact that larger volumes of the Gibier solution were injected than of the Behring.

Pain was complained of in several cases as being severe, both during and for hours following the injection, and also after several days' interval. The later manifestations were sometimes all over the legs and sometimes specially in the joints and of a rheumatoid character.

I could not satisfy myself that any cases of nephritis or endocarditis were attributable to the serum, as the proportion of these complications was not larger than is usual. Seventeen cases of the 80 showed signs of nephritis, being 21 per cent., which is not so large a proportion as occurred in my previous service under other methods of treatment.

The painful complications above noted will, I hope, disappear with greater perfection in the preparation of the material. With more moderate prices for the product the temptation will be less to the employment of horses which have a tendency to produce the cutaneous accidents, and the immunization of the animals can, when the hurry to "realize" on the product is less, be carried to a greater degree, so that the dose required for injection may be expected to become less. Finally, we may, I think, look for the time when the *true* antitoxin will be isolated from the blood-serum in which it is contained, and be employed in a smaller and more precise dose, with the total elimination of the cutaneous and other accidents which now constitute a drawback to serum therapy. Meantime, in the method as it stands, we have, as I believe, an achievement which in its beneficent results, is comparable only to the discovery of Jenner.

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AN anti-cigarette league, representing 25,000 public-school boys in New York City, has been organized.

## A CLINICAL AND EXPERIMENTAL STUDY OF THE LEUCOCYTOSIS OF DIPHTHERIA.*

BY JOHN LOVETT MORSE, M.D.

(Continued from No. 10, p. 224.)

THE object of the first experiment was to determine whether a local diphtheria would cause a hyperleucocytosis.

RABBIT NO. 1.

October 24th. 9.30 A. M., white corpuscles, 5,800. 11 A. M., the palpebral conjunctiva of the left eye was excoriated over a small area and a pure, fresh culture of the Klebs-Löffler bacillus on blood-serum rubbed in. This culture was the second generation from a fatal case.

October 25th. 9.30 A. M., a spot of membrane, about one-quarter of an inch long and one-sixteenth of an inch wide, was present at the site of the excoriation. White corpuscles, 6,400.

October 26th. 10.30 A. M., membrane all gone. White corpuscles, 7,100. As the amount of membrane had been so small, and the increase of white corpuscles so slight as to be within the bounds of possible error, it seemed best to repeat the experiment. Accordingly, the conjunctiva was again excoriated at the same spot, but more deeply and over a larger area. 11.30 A. M., reinoculated with same culture.

October 27th. 10.15 A. M., excoriated spot covered with membrane over an area about one-quarter of an inch square, the membrane also extending a little onto the ocular conjunctiva which had not been irritated. White corpuscles, 9,100.

October 28th. 9.15 A. M., membrane a little less extensive. White corpuscles, 9,100. A blood-serum tube, inoculated from the eye at this time, twenty-four hours later showed a pure culture of the Klebs-Löffler bacillus.

October 29th. 12 M., membrane only about half as extensive. White corpuscles, 8,400.

October 30th. 9.30 A. M., membrane disappeared. White corpuscles, 8,200.

November 1st. 9.30 A. M., white corpuscles, 6,000.

The result of this experiment proves that a local diphtheria, produced by the Klebs-Löffler bacillus alone, is capable of causing a hyperleucocytosis. The results also agree in a general way with the conclusions arrived at clinically, namely, that the hyperleucocytosis varies with the amount of membrane and ceases soon after its disappearance.

A series of experiments was next undertaken to determine if the toxine produced by the Klebs-Löffler bacillus would alone, as seemed probable, cause a hyperleucocytosis.

RABBIT NO. 2.

October 31st. 9.30 P. M., white corpuscles, 12,400.

November 1st. 10 A. M., one-half a cubic centimetre of toxine solution injected into ear-vein.

November 2d. 9 A. M., found dead. A count of the heart's blood showed white corpuscles, 23,400. Autopsy showed inguinal, axillary, mesenteric and retroperitonea glands enlarged and reddened. Liver, macroscopically, showed no necrosis. Kidneys moderately congested. No fluid in thorax. Lungs somewhat congested and slightly edematous. Bone-marrow somewhat reddened.

RABBIT NO. 3.

November 2d. 12 M., white corpuscles, 6,700. 12.45 P. M., one-tenth of a cubic centimetre of toxine solution injected into ear-vein.

November 3d. 10.30 A. M., white corpuscles, 12,000.

November 4th. 10 A. M., white corpuscles, 16,300. At this time the animal was decidedly sick, showing marked

* A paper to which was awarded the First Lyman Prize for the year 1894. This paper will appear in the Medical and Surgical Reports of the Boston City Hospital, Sixth Series.

paresis of hind legs and some of front. 3.30 P. M., white corpuscles, 20,800. The rabbit was moribund at the time of this examination.

November 5th. 12 M., autopsy, rabbit having died during the night, showed axillary glands enlarged and reddened. Little or no enlargement and no injection of inguinal, mesenteric or retroperitoneal glands. Suprarenals much reddened. No macroscopic necrosis of liver. Kidneys much congested. No fluid in thorax. Lungs slightly congested, but not edematous. Bone-marrow very red.

In this case the leucocytosis had doubled in twenty-two hours and continued to increase steadily up to the time of death.

RABBIT NO. 4.

November 6th. 3.30 P. M., white corpuscles, 5,200. 4.30 P. M., one-fiftieth of a cubic centimetre of toxine solution injected into ear-vein.

November 7th. 9.30 A. M., white corpuscles, 8,400. 3.30 P. M., white corpuscles, 11,400. The rabbit was now evidently sick.

November 8th. 9.15 A. M., white corpuscles, 11,700. Rabbit much sicker. A differential count of the white cells made at this time, the height of the hyperleucocytosis, resulted as follows:

| | Per cent |
|---|---|
| Small Lymphocytes | 30.8 |
| Large Mononuclear and Transition Forms | 5.8 |
| Polynuclear Neutrophiles | 7.8 |
| Eosinophiles | 55.6 |

The consideration of this, as well as of the following differential counts will be taken up later.

November 9th. 9.30 A. M., white corpusules, 7,600. The rabbit was livelier than during the two previous days, and evidently on the road to recovery.

DIFFERENTIAL COUNT.

| | Per cent. |
|---|---|
| Small Lymphocytes | 41 |
| Large Mononuclear and Transition Forms | 10 |
| Polynuclear Neutrophiles | 11 |
| Eosinophiles | 38 |

November 10th. 9.30 A. M., white corpuscles, 4,000. Rabbit still improving.

November 17th. 9.30 A. M., white corpuscles, 5,800. The rabbit was now entirely well, but showed considerable induration about the seat of injection. It showed no signs of paralysis at any time.

In this case the increase in white corpuscles was well marked in seventeen hours, reached its maximum in forty-one hours, and had disappeared in eighty-nine hours. It is to be noted that the animal's condition varied with the leucocytosis, he being sickest when it was at its height, and improved as it diminished. It is also worth noting that the hyperleucocytosis disappeared before any local reaction manifested itself, which is in direct contradiction to v. Limbeck's theory.

The three preceding experiments seem amply sufficient to prove that the toxines alone are competent to produce a hyperleucocytosis. They also justify the conclusion that the hyperleucocytosis in diphtheria is due to the absorption of the toxic products of the Klebs-Löffler bacillus and varies directly with the amount of absorption.

It is probable, however, that clinically the toxic products of associated bacteria play a part in its production. The subsequent experiments, although undertaken for other purposes, emphasize the same points.

The next experiment was undertaken to determine whether the toxines of the Klebs-Löffler bacillus cause an initial hypoleucocytosis, and if so, the time of its appearance and its duration.

RABBIT NO. 5.

November 10th. 4 P. M., white corpuscles, 7,900.

DIFFERENTIAL COUNT, NORMAL BLOOD.

| | Per cent. |
|---|---|
| Small Lymphocytes | 45.2 |
| Large Mononuclear and Transition Forms | 6.6 |
| Polynuclear Neutrophiles | 11.2 |
| Eosinophiles | 37.0 |

November 11th. 9.15 A. M., Four-tenths of a cubic centimetre of toxine solution injected into ear-vein. 9.30 A. M., white corpuscles, 5,100.

DIFFERENTIAL COUNT.

| | Per cent. |
|---|---|
| Small Lymphocytes | 32.2 |
| Large Mononuclear and Transition Forms | 7.6 |
| Polynuclear Neutrophiles | 8.9 |
| Eosinophiles | 51.3 |

10.30 A. M., white corpusules, 4,900.

DIFFERENTIAL COUNT.

| | Per cent. |
|---|---|
| Small Lymphocytes | 31.2 |
| Large Mononuclear and Transition Forms | 7.4 |
| Polynuclear Neutrophiles | 11.2 |
| Eosinophiles | 50.2 |

11.45 A. M., white corpuscles, 7,300. 3.30 P. M., white corpuscles, 13,100.

November 12th. 9.15 A. M., white corpuscles, 11,500. The animal at this time, although not well, showed no very marked symptoms.

November 13th. 9 A. M., found dead, but warm.

At the autopsy the axillary glands were slightly enlarged, but not much reddened. No enlargement or injection of inguinal, mesenteric or retroperitoneal glands. Supra-renal capsules moderately reddened. No macroscopic or microscopic necrosis of liver. Kidneys much congested. No fluid in thorax. Lungs moderately congested, but not edematous. Bone-marrow very red.

As is evident above, the result of this experiment is positive, a definite hypoleucocytosis being present fifteen minutes after the injection. The lowest point was reached in an hour and a quarter. One and one-quarter hours later the number had nearly returned to normal, and three hours after this there was a marked hyperleucocytosis. The differential counts will be considered later. In "Rabbit 7" also, a marked hypoleucocytosis was present in half an hour.

The existence of hyperleucocytosis and hypoleucocytosis having been demonstrated, a series of investigations was begun to determine, if possible, the nature of the processes, and to determine also which, if any, of the theories detailed above was tenable. The best way of getting at this seemed to be to kill animals during the various stages and then to make careful microscopic examinations of the organs, paying especial attention to the distribution of the white cells in them and to the bone-marrow.

The animals were killed by a sharp blow on the back of the neck, immediately autopsied, and the organs removed with as little handling as possible and placed in a saturated solution of corrosive sublimate in normal salt solution. After hardening in this for twenty-four hours they were washed in running water for twenty-four hours, then placed in absolute alcohol and mounted in celloidin in the usual manner. The sections were all cut of the same thickness in order to avoid error. Sections of the femur were made in the normal rabbit and in one killed during hyperleucocytosis and kept in absolute alcohol for ten days. The outside bone was then removed and the marrow placed in five-per-cent. nitric acid for twenty-four hours. It was then washed and mounted in celloidin as were the other organs. Cover-slips were also made from the fresh bone-marrow and hardened in alcohol and ether.

### RABBIT NO. 6.

A normal rabbit killed for purposes of comparison. It is noteworthy that the bone-marrow of the rabbit is extraordinarily rich in eosinophile cells, they forming the very great majority of the white cells present there.[14]

### RABBIT NO. 7.

Killed during hypoleucocytosis.

November 15th. 10.30 A. M., white corpuscles, 7,300. 11.15 A. M., seven-tenths of a cubic centimetre of toxine solution injected into ear-vein. 11.45 A. M., white corpuscles, 4,500. 12.15 P. M., killed.

At the autopsy no macroscopic changes were recognizable. Bone-marrow yellowish-red. Microscopical examination of specimens of the liver and kidney, stained with saffranin, showed no abnormal changes. There was no congestion and no increase in the number of white cells in their capillaries. Sections of the lungs were stained both with saffranin and with Ehrlich's "triple-stain," the latter giving a most beautiful differentiation of the white cells. These sections were carefully compared with those of the normal lung prepared in the same way. It must be admitted here that the conclusions arrived at are founded entirely on individual estimation and judgment, it being impossible to count the cells.

Drs. Councilman and Mallory, however, who were shown the specimens from the three cases, without being told which was which, arrived at the same conclusions regarding the number of white corpuscles as myself. While there was no noticable increase in the number of red corpuscles in the lung capillaries, the white cells were very much more abundant than in the normal lung. In the large blood-vessels, however, the white corpuscles were much diminished. It was impossible to tell whether any one kind of white cells was more than proportionately abundant, the general impression being, however, that the proportions were about normal. Numerous hyaline thrombi were present in the lungs.

### RABBIT NO. 8.

Killed during hyperleucocytosis.

November 18th. 11 A. M., white corpuscles, 12,700. 11.45 A. M., two-tenths of a cubic centimetre of toxine solution injected into ear-vein.

November 19th. 9.30 A. M., white corpuscles, 29,200.

DIFFERENTIAL COUNT.

| | Per cent. |
|---|---|
| Small Lymphocytes | 15.4 |
| Large Mononuclear and Transition Forms | 1.6 |
| Polynuclear Neutrophiles | 4.4 |
| Eosinophiles | 78.6 |

11 A. M., killed.

At the autopsy the axillary, inguinal, mesenteric and retroperitoneal glands were unchanged. Supra-renals much reddened. No macroscopic necrosis of liver, which was somewhat congested. Kidneys much congested. Urine not hemorrhagic. No fluid in thorax. Lungs moderately congested, but not edematous. Bone-marrow yellowish-red, but no redder than normal.

Microscopic examination of sections of the liver, stained with saffranin, showed marked congestion. The increase in white cells did not seem out of proportion to the increase in red, when the hyperleucocytosis was taken into consideration. Double-staining with eosin and methylene-blue failed to show any necrotic areas. Sections of the kidney, stained with saffranin, showed an enormous congestion. The increase in white cells, however, was not out of proportion to the hyperemia and hyperleucocytosis. Sections of the lungs were prepared as in the previous cases. There was a decided increase in the number of red cells in the capillaries. The white corpuscles seemed less abundant in the capillaries than during hypoleucocytosis. They were more numerous than in the normal lung, however, and seemed to be in larger numbers than the congestion and general hyperleucocytosis would explain. The impression obtained was that the eosinophile cells were more than proportionately abundant. The white cells in the large blood-vessels seemed about proportionate to the red corpuscles, when the general hyperleucocytosis was taken into consideration. Numerous hyaline thrombi were present in these lungs also.

Specimens of the bone-marrow stained with saffranin and compared with the normal showed a diminution in the number of polynuclear cells and giant cells; nuclear figures, however, were much more abundant. Those stained with "triple-stain" also showed a diminution in the number of giant cells. There was a great increase, however, in the number of small cells with small, round, deeply-staining nuclei and a marked increase in the nuclear figures in these same cells. I am unable to give any explanation of the significance of these cells or of the change in them.

The object of the last experiment was to determine whether there was the same increase in the number of erythrocytes during experimental hyperleucocytosis as appeared clinically. The corpuscles in five cubic millimetres were counted at each examination.

### RABBIT NO. 9.

December 1st. 3.45 P. M., red corpuscles, 6,075,200; white corpuscles, 8,800; white to red, 1,690. 4.15 P. M., two-tenths of a cubic centimetre of toxine solution injected into ear-vein.

December 2d. 9.30 A. M., red corpuscles, 7,436,400; white corpuscles, 12,400; white to red, 1,600.

That is, there was an increase in the number of red corpuscles of a little more than 20 per cent., thus confirming the clinical observations. As stated, when considering the clinical examinations, I am unable to find any satisfactory explanation for this increase.

December 3d. 10 A. M., rabbit moribund. Circulation so feeble that no blood could be obtained from ear.

December 4th. 9 A. M., died during the previous afternoon.

At the autopsy the axillary glands were moderately enlarged and reddened; inguinal glands less so; mesenteric and retroperitoneal not at all. Supra-renals moderately reddened. Liver moderately congested, but showed no macroscopic necroses. Kidneys much congested. No fluid in thorax. Lungs moderately congested and edematous. Bone-marrow no redder than normal.

The results of my experiments coincides pretty closely with those obtained by Goldscheider and Jacob. They show that hyperleucocytosis occurs without local inflammation or exudate, and that, experimentally at any rate, hyperleucocytosis is preceded by hypoleucocytosis. The presence of an increased number of white cells in the lung capillaries during hypoleucocytosis, and to a less extent during hyperleucocytosis, is in direct contradiction to Löwit's theory of leukolysis. The absence of an increase of white cells in the liver and kidney during hypoleucocytosis and the persistence of an increased number in the lung capillaries during hyperleucocytosis prove that Schultz's supposition that hypoleucocytosis and hyperleucocytosis are merely the expression of a shifting of leucocytes is wrong.

As already noted, my results were the same as those obtained by Goldscheider and Jacob, except that I found rather fewer leucocytes in the lung capillaries during hyperleucocytosis than during hypoleucocytosis. This is a comparatively unimportant difference, however, as there are so many more there than in the normal lung that it is evident that at least only a part of the cells can have returned to the general circulation, and hence that the white cells in the general circulation during hyperleucocytosis must be largely new accessions from the blood-forming organs; that is to

say, my results corroborate the chemotaxic theory and seem explicable by it alone.

Everard concludes that there is a special diminution in the polynuclear cells with granular protoplasm during hypoleucocytosis, and that these same cells are very abundant during hyperleucocytosis. Löwit and Goldscheider and Jacob found almost exclusively mononuclear cells immediately after hypoleucocytosis, and that a decided preponderance of polynuclear cells arises during the course of the hyperleucocytosis. The proportions of the white corpuscles in the rabbit differ decidedly from those in man. The average of the differential counts made in the normal rabbits is as follows:

| | Per cent. |
|---|---|
| Small Lymphocytes | 43 |
| Large Mononuclear and Transition Forms | 8 |
| Polynuclear Neutrophiles | 11 |
| Eosinophiles | 38 |

That is, there are twice as many small mononuclear cells as in human blood while the polynuclear neutrophiles, which make up the bulk of the white cells in human blood, here form but a small factor. The eosinophile cells, however, are very much more numerous, making more than a third of the total. They probably correspond to the polynuclear neutrophiles in the human blood and represent the oldest forms. Attention has already been called to their extreme abundance in the normal marrow. Two counts made during hypoleucocytosis (Rabbit 5) resulted as follows:

| | Per cent. | |
|---|---|---|
| Small Lymphocytes | 32.2 | 31.2 |
| Large Mononuclear and Transition Forms | 7.6 | 7.4 |
| Polynuclear Neutrophiles | 8.9 | 11.2 |
| Eosinophiles | 51.3 | 50.2 |

That is, there was a diminution in the small mononuclear cells and a proportionate increase in the polynuclear eosinophiles, which is directly the opposite of Everard's observation. No count was made at the beginning of hyperleucocytosis. One made at its height (Rabbit 8) resulted as follows:

| | Per cent. |
|---|---|
| Small Lymphocytes | 15.4 |
| Large Mononuclear and Transition Forms | 1.6 |
| Polynuclear Neutrophiles | 4.4 |
| Eosinophiles | 78.6 |

Another made during the subsidence of hyperleucocytosis was as follows:

| | Per cent. |
|---|---|
| Small Lymphocytes | 30.3 |
| Large Mononuclear and Transition Forms | 5.8 |
| Polynuclear Neutrophiles | 7.8 |
| Eosinophiles | 55.6 |

This agrees entirely with the results of other observers, and is undoubtedly the analogue of the increase in polynuclear neutrophiles in man. Goldscheider and Jacob lay much stress on this large proportion of eosinophiles, and consider that they are not entirely formed from the new mononuclear cells, but are partly old cells which were lying in the bone-marrow ready for extrusion, and have been brought into the circulation in increased numbers by chemotaxic action. A careful study of slips made from the fresh bone-marrow was very unsatisfactory. The impression obtained, however, was that the eosinophile cells were less plentiful in the marrow of hyperleucocytosis than in the normal. As mentioned above, the cut section of the marrow of hyperleucocytosis showed a diminution in the number of polynuclear cells. These observations, as far as they go, agree with Goldscheider and Jacob's position, that the increase in the eosinophiles is partly the result of the extrusion of the cells already formed in the marrow, and confirm the chemotaxic theory.

The gross pathological lesions observed in the five animals autopsied during hyperleucocytosis are of some interest. In one case there was no involvement of the lymph-glands. In all the others the axillary glands were enlarged and more or less congested, while the inguinal were affected in two, and the mesenteric and retroperitoneal in only one. The supra-renal capsules were involved in every case, being moderately reddened in three and much in two. The kidneys were enormously congested in four cases, and moderately so in one. The liver was slightly congested in two, not at all in the remainder. No macroscopic necroses were observed and none were found in the two cases examined microscopically. The thorax never contained fluid. More or less congestion of the lungs was present in every instance, however, and in two there was slight edema. The bone-marrow was redder than normal in three cases.

To sum up, the constant and most striking lesions were congestion of the kidneys, supra-renals and lungs. More or less acute lymphademitis was usually present, and occasionally edema of the lungs and reddening of the bone-marrow. Necrotic foci in the liver and fluid in the thoracic cavity, which were found so frequently by Wright[15] in guinea-pigs dead of experimental diphtheria, were not observed.

When my work was nearly completed, a paper was published by Gabritschewsky[16] entitled "Du Rôle des Leucocytes dans l'Infection Diphterique." He investigated the general leucocytosis of diphtheria in children and rabbits, and in addition studied the local leucocytosis and the action of the antitoxin serum on the progress of the leucocytosis. His conclusions regarding the general leucocytosis, based on his observations on fourteen children and on rabbits, are as follows: There is always a hyperleucocytosis in diphtheria, which is greatest in the fatal cases, and which progressively diminishes during convalescence and after injections of antitoxin. A progressive hyperleucocytosis in diphtheria justifies a bad prognosis, and the analysis of the blood gives useful information regarding the value of treatment. He found that the number of white cells ordinarily varied between 11,450 and 25,000, and in fatal cases between 29,500 and 51,000.

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M. Alphonse Guerin, of Paris, died on Thursday, February 21st. He was seventy-eight years of age.

## Clinical Department.

### LEUCOCYTOSIS IN POISONING BY ILLUMINATING GAS.

BY RICHARD G. EATON,
*House-officer, Boston City Hospital.*

IN view of the attention which is being given to the presence and signification of leucocytosis in various pathological conditions, I venture to report, with the permission of the Visiting Physician, the results of the blood examinations in four cases of poisoning by water-gas, occurring recently at the City Hospital.

CASE I. Male, twenty-one, single. Entered on the morning of October 7th, in an almost unconscious condition. He had been drinking the night before, and returned to his room some time after midnight. In the morning he was found unconscious, with a strong odor of gas in the room and the gas turned on. He was brought to the hospital. An examination of his blood at that time showed roughly an apparent increase in the neutrophylic leucocytes and poikilocytosis. A careful count of the blood gave an average of 4,000,000 red and 22,000 white corpuscles to the cubic centimetre. The patient recovered consciousness in a few hours after entrance, and was discharged well in a few days. Blood-counts were made in the instance of three other gas-poisoning cases on the service, as the leucocytosis observed in the first case was considered of sufficient importance to make a record of it. The three following cases also showed a leucocytosis varying from 15,000 to 19,000.

CASE II. Female, twenty, single. Entered the hospital November 10th, having been in an unconscious state for eight hours. An examination and blood-count was made on the following day, the blood being very dark when drawn. The leucocytes numbered 15,000.

CASE III. Male. Entered November 15th. Unconscious, cyanotic, and with an odor of gas in his breath. A blood-count showed 19,000 white corpuscles. On the following day another count was made, the whites numbering 18,000, and the reds 4,000,000.

CASE IV. Female, sixty, married. Entered November 18th. Was unconscious and somewhat cyanotic, with an odor of gas in her breath. A blood-count was made on the following day, when the whites numbered 18,000, and the reds 4,810,000; hemoglobin was 96 per cent. The patient recovered from the effects of the gas-poisoning and was discharged.

## Medical Progress.

### RECENT PROGRESS IN PATHOLOGY.

BY W. T. COUNCILMAN, M.D.

#### THE ETIOLOGY OF CARCINOMA.

MOST of the recent articles on the etiology of carcinoma refer it to organisms belonging to the protozoa.

Since the last report on this subject in the Boston *Medical and Surgical Journal*, many new articles have appeared. One of the most important is a collective report by Stroebe in the *Centralblatt f. Allgeimeine Pathologie*, in January, 1894. In this article a critical review is given of the most important publications on the parasitism of carcinoma which have appeared in the last three years.

In the beginning of the article Stroebe refers to publications on the diseases of animals supposed to be due to parasites belonging to the sporozoa. One of the most important works on this subject is that of Pfeiffer. He has investigated affections of animals and of man in which sporozoa have been found, and has embodied the results of his investigation in an extensive monograph accompanied by an atlas filled with photo-micrographs. In almost all of these diseases the epithelial structures are involved, and the lesions consist essentially in hypertrophy and hyperplasia of the cells. Pfeiffer has also described certain affections of the voluntary muscles in various animals, especially in fish. In the latter the nerves may be affected and the disease may appear as a parasitic polyneuritis. Invasion of the red blood-corpuscles by the sporozoa is seen in birds and mammals. The classification of the sporozoa is very indefinite. Pfeiffer follows the classification of Butschli, who has divided them into the gregerina, the coccidia, and the sporidia. The best known among the coccidia is the coccidium oviformis, which is a common parasite of the liver of the rabbit. The sporidia are further divided into the sarco-sporidia, the micro-sporidia and the myxo-sporidia. Many of these exist as parasites in the muscles. As a further division Pfeiffer makes a class of hemo-sporidia, to which belong the blood parasites in the frogs, in birds and in man.

With regard to the development of coccidia and sporidia, he shows that there is a protoplasmic youthful form resembling a naked cell which grows to a considerable size and then becomes encysted. The protoplasmic masses within the capsule segments into a number of bodies, the so-called sporo-cysts, or spores of the first order; and in the interior of these small boat-shaped bodies the typical spores develop. He shows that the number of the spores in the sporoblast is characteristic for the different species. From these spores the protoplasmic youthful form can develop. The organism does not always go through these different stages. The stages of development are frequently shortened, and in many species some of the stages are wanting. Most of the phases of development of the parasitic sporozoa are met inside of the host, whereas others take place outside.

In the work of Pfeiffer there are a number of interesting observations. There can be little doubt that in many cases the conditions which he describes are due to parasitic sporozoa, and there can be equally no doubt that in many cases he has described and depicted conditions in cells which have nothing to do with parasites. Steinhause has described a condition in the cells of the alimentary of the salamander probably due to a sporozoic parasite. This develops in the nucleus of the cell, and devours the nuclear substance. Pfeiffer has also given a careful description of the coccidial disease which appears in the liver and intestine of rabbits. The disease is a very common one, and in the liver the parasites can be easily demonstrated in the epithelium of the bile-ducts. These produced hyperplasia of the bile-ducts leading to more or less extensive capillary ingrowths of the epithelium, which appeared as tumor-like masses in the liver. In its youngest form the parasite appears as a round protoplasmic mass of about the size of red blood-corpuscles with vesicular nucleus, which does not stain with the

ordinary nuclear stains. These bodies are found partly free in the contents of the bile-ducts, partly in the epithelium of their walls. In the course of development, which is exclusively intra-cellular, the parasites press to the foot of the cylindrical epithelial cell, greatly distending it. It then becomes granular, and surrounded with a double-contoured membrane. It has been known that these oviform coccidia grow outside of the body of the host, but Pfeiffer was the first to discover its inter-cellular growth. This oviform structure divides into four round or ovoid structures which are also surrounded by a membrane, and these divide each into two sickle-shaped spores which represent again the youthful form. In some cases segmentation of the parasite can take place without the preceding stage of encysting. It then divides into a number of sickle-shaped structures which become surrounded by a membrane, as the skin of an orange surrounds the segments. The infection of the rabbit takes place by these ripe cysts filled with spores, being taken into the stomach with food. The membrane of the cysts are softened by digestion, and the spores having become free enter into the intestine or liver. These organisms, or organisms similar to these, have been found in affections of the intestines of young sheep and in other places.

When we leave this simple disease of animals and take up what has been written concerning the supposed coccidial affections in man, we come to much more uncertain ground. They have been described in the affection known as Darier's disease. In this the pathological condition consists in the formation of small foci of hyperkeratosis, producing small elevations distributed over almost all parts of the body. According to Darier and White, the abnormal keratosis takes place from the ducts of the hair-follicles. In the neighborhood of the small foci there is increased pigmentation of the reti, the epithelial cells of the horny layer are loosened, frequently separated by fissures, and the cutis shows slight inflammatory changes. Darier has described in the horny layer of the skin peculiar structures which he regards as psorosperms, and which he thinks can be distinguished from the epithelial cells. The views of Darier on the parasitic nature of these structures are opposed to Bowen, who studied the histological changes in the disease. At present most of the authors who have investigated this disease are inclined to refer the supposed parasites to abnormal processes of cornification.

The epithelioma contagiosum has long been considered as due to a parasite. The disease appears in the form of small nodules of about the size of a pea, with a central depression. On section it has a distinctly lobular form due to the epithelial masses which extend out from the central depression. Peculiar highly refractive bodies are found in the central depression, and in the masses of epithelial cells. In 1888 Neisser described a supposed parasite in this affection, and considered it as belonging to the coccidia. Torok opposed this view, and considers the molluscum bodies as the product of degenerative processes in the epithelial cells. He considers them, on account of their great resistance to chemical changes, as probably formed of a colloid substance, and thinks that they should not be considered as animal parasites until evident signs of development or proliferation can be made out in them. Zeigler regards the parasites as probably belonging to the coccidia, and the cause of the peculiar growth of the epithelium. He describes as the youthful forms of the parasites, round protoplasmic structures, lying in the epithelial cells beside the nucleus. The parasite is at first difficult to distinguish from the cell protoplasm, but later shows small, distinct granules in its interior which grow out to large bodies. The whole parasite increases in size and takes up almost the entire cell, pressing the nucleus to one side.

When we take into consideration all the views which have been held as to the character of the molluscum bodies, it appears evident that the authors who regard them as non-parasitic in character have rather the best of the argument. No certain proof of their parasitic character has ever been given. They are simply peculiar bodies which stain differently from the rest of the epithelium. Eleidine and other constituents of normal epithelial cells have been made out in them, and they are most probably epithelial cells which have undergone some peculiar form of degeneration. The results of inoculation show that the affection is contagious, but the contagion may be due to something else than the molluscum bodies.

Under the name of epithelioma follicularis cutis, Israel has described a peculiar form of tumor very similar to molluscum contagiosum, and in this he has found structures similar to the moluscum bodies. The formation is an epidermoid tumor of benign character, and which appears on those parts of the skin which are covered with hair. The surface of the tumor is covered with a thin layer of epidermis, and there are crater-like openings which pass in the interior. These depressions which are due to enlarged and deformed hair-follicles give the tumor an irregular surface; and he considers it a retention tumor, with proliferation of the surrounding epithelium. In the epithelial covering the depressions, structures in every way similar to the molluscum bodies, are found in great numbers. He does not regard it as certain that they are parasites, although he says that many of them correspond to certain forms found in the various stages of development of the sporozoa.

In Paget's disease of the nipple, structures of a similar character have been described. In this affection there is an early stage similar to eczema. This produces a superficial ulceration with depression of the nipple, and sometimes, after years, a typical epithelioma develops. Darier, Wickham and Malassez regard this affection as parasitic and due to living sporozoa in the epithelial cells, but this view has been opposed by various authors. Affections in some respects similar to Paget's disease have been described in other parts of the body. Pick has reported a similar condition arising in the glans penis. In the epithelial growth of this he found numerous bodies similar to the psorosperms described by various authors. Ruffer and Plimmer found in two cases of Paget's disease a supposed form of parasite different from that described by Darier and Wickham, and similar to the forms found by these authors in carcinoma and considered by them as parasitic. These supposed parasites were not found where the affection had an eczematous character, but in the epithelial cells of the parts in which the distinct carcinoma had developed. Neisser, who regards the parasitic character of the molluscum bodies as certain, expresses himself cautiously about Paget's disease. On the other side, the

proof which would be given by differences in staining, that the structures are parasitic, is wanting. Further, the regular localization of the affection in the female breast does not speak in favor of its parasitic nature. In the metastases of the carcinoma developing from this, Neisser was not able to find the supposed parasites. Karg, who has investigated the affection carefully, does not consider the structures described as parasites. He thinks that the disease in the very beginning is an epidermoid carcinoma.

When we review what has been given here it is seen that strict proof of the parasitic nature of the bodies described in these affections has not been given, and for some of them it is very probable that they are altered epithelium. We could divide the four affections into two groups: one in which the molluscum contagiosum and the epithelioma follicularis could be placed, and in the other Darier's disease and Paget's disease. The proven infectiousness of the molluscum contagiosum, the peculiar position and shape of the structures described in it, and their similarity to some of the known forms of the sporozoa would incline one to consider them as parasitic in character. It is possible, however, that they may be altered or degenerated epithelial cells and the infectious matter may still be undiscovered.

A great number of publications have appeared on the supposed sporozoa found in carcinoma. New forms of the supposed parasites are constantly being described and many articles have appeared, some speaking for, and others against the parasitic nature of these structures. The appearances described by the different authors are of a very different character; and almost all appearances in the cells, which with our present knowledge cannot be well explained, have been regarded as parasites.

Steinhause has carefully investigated these appearances in the carcinoma cells, and thinks that they are to be referred to a number of conditions. They may be due to leucocytes which have become enclosed in the bodies of the epithelial cells, and these undergo degeneration, or partial cornification of cells, or to inclusion of one cell, or part of a cell in another cell. In 95 carcinomas of various sorts Soudakewitch found structures which, on account of their morphological characters, he considers identical with the parasitic sporozoa. Frequently several of the supposed parasites were included in the same cell. They were found in the hypertrophied cells, and even in those which showed nuclear division. He does not think that the multiplication of cells is produced by the parasites, but it is not retarded by their presence. Where destruction of the cell is due to the parasite, it is in consequence of the atrophy of the nucleus from the pressure exerted by the growing parasite. Finally the cell bursts and the parasite is free, and other cells may be infected. When the cell containing several parasites divides, then each of the daughter cells may contain the parasites. Metschnikoff confirms the observances of Soudakewitch, and thinks that these structures are most probably coccidia. He has found forms of parasites in carcinoma which show a remarkable similarity with certain stages of development of the oviform coccidia in the rabbit's liver. Podwissoki and Sawtschenko have found sickle-shaped structures in 20 carcinomas from different organs, which they considered as parasitic. Foa found in 70 carcinomas, most of which were in the mammary gland, structures enclosed in cells, which he regards as parasites. As the earliest stage of the development of the parasite, he describes small, round, oval, vesicular bodies, which were frequently contained in great numbers in the protoplasm of the cancer cell. In the vesicles there is an irregular central body which is colored a dark blue with hematoxylin, and divided into segments by lines radiating from the centre to the periphery. These structures may be so large that the nucleus is pressed to one side. He thinks that the presence of these parasites in the cells is not accidental, but they stand in a causal relation with the development of the carcinomas. In a second publication on the subject he remarks that the interest of the investigators has centred on certain forms of cell-inclusion which have nothing to do with degenerative products, but which are most probably parasitic in character. In sixty different tumors investigated by him about one-third show clearly the parasites. Almost every form of the tumor shows a special form of parasite. In the places where cell-division was going on most rapidly the parasites were most numerous.

*(To be continued.)*

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting Monday, January 7, 1895, DR. C. J. BLAKE in the chair.

#### ANATOMICAL SPECIMENS.

DR. HOMANS: I have here a fibroid consisting of two principal lobes with the body of the uterus between them, that is, dumb-bell shaped. The patient was a single woman, thirty-two, thin and suffering from pelvic pain and from constipation; otherwise pretty well, but as I had seen one patient with a fibroid filling the bony inlet of the pelvis and compressing the rectum, I thought it was well to remove this tumor. This woman did remarkably well, had no rise of temperature. There was one peculiar thing about her, a susceptibility to morphia. The family was said to be remarkably susceptible to morphia, and as I always give my patients morphia subcutaneously before etherization, I was careful to give this patient only one-sixteenth of a grain at nine o'clock. At two o'clock I was called to see her, and her respirations were seven per minute, her face dusky, and she was evidently very deeply narcotized. She was given one-sixtieth of a grain of atropia, and in the course of an hour or two the respirations rose to sixteen or seventeen and she recovered well. But I never saw morphine poisoning from one-sixteenth of a grain of morphia before.

DR. S. L. ABBOTT related

#### A CASE OF EMBOLISM OF THE FEMORAL ARTERY.

DR. JOHN HOMANS read a paper on

#### THE SURGICAL TREATMENT OF UTERINE FIBROIDS.[1]

DR. BAKER: I have been very much interested in Dr. Homans's paper. I am very glad indeed to hear

[1] See page 221 of the Journal.

that Dr. Homans has given up the method of extra-abdominal treatment of the stump. It always seemed to me to be rather an unsurgical method, although I never used it but once. It seems to me we have gone through, in the treatment of the stump, very much what was gone through years ago in regard to ovarian cysts. We remember when Sir Spencer Wells was treating the pedicles of ordinary ovarian cysts outside of the body with a clamp, and it seems to me it is a great advance in the treatment of fibroids by the intra-abdominal method. And I quite agree also with Dr. Homans in his make-up of the class of cases of fibroids that require operation. It seems to me his draft of those causes was exceedingly well made. I am also glad to see he uses the braided silk in preference to the catgut for these cases. I was talking a short time ago with Dr. Kelley of Baltimore, and that is what he makes use of entirely in those cases. It seems to me there are certain advantages to be gained sometimes in the removal of fibroids by preceding the operation by thorough curetting of the uterus and the thorough cleansing of the vagina, inasmuch as we cannot always tell in advance what case may require opening of the vagina and perhaps removal of the entire uterus. Certain it is that some cases seem to be better treated by the removal of the whole uterus, and even in the cutting off the uterus, as Dr. Homans has described, I think that preceding the operation with thorough curetting of the uterus will give a little better chance to do a clean operation, and prevent any sepsis from the wound, and not trust entirely to the use of the cautery for that purpose.

My experience in the removal of the ovaries and tubes for the disappearance of fibroids would teach me to take a little exception to what Dr. Homans has said in the matter of its being unreliable. In a limited number of cases, perhaps ten or twelve, where I have removed the ovaries and tubes for the disappearance of the fibroid it has been exceedingly reliable: but it is only right to say that I should choose for that operation a fibroid where the uterus and the fibroid together were not larger than the uterus at three or three and a half months of pregnancy. I should not hope to cause a disappearance of a large fibroid by the removal of the tubes and ovaries although it might sometimes occur; still I think in the small fibroids, if not larger than the gravid uterus of three or three and a half months, it would be found to be more reliable than perhaps Dr. Homans has intimated.

I do not know of anything that requires a more careful exercise of judgment than to know what to do with an individual case of fibroid, so many things have to be considered; and I think as we go on and see more and more cases, we are perhaps all the more at a loss to know exactly what advice to give in any individual case. I think Dr. Homans expressed it very well indeed: "If it is so large and for reasons of delicacy of feeling of a single person, or if by its pressure it is accomplishing so much harm, it is a case to be operated upon." But it is surprising sometimes to see what an amount of disturbance even a small fibroid will make. In the case Dr. Homans showed to-night, the size of which is nothing like some of the large fibroids he has shown here, the disturbance from it was undoubtedly so great as to necessitate its removal; therefore I do not think you can always reason from the size of the fibroid that it would or would not necessitate an operation. I showed to this Society within two years quite a small fibroid that caused such an amount of disturbance, both nervously and of the rectum, that it necessitated its removal, and this was accompanied by perfect relief.

I think we all should thank Dr. Homans most heartily for the very interesting paper which he has presented to us to-night.

Dr. Richardson: I have followed the teachings of Dr. Homans in the treatment of fibroids as I have in the treatment of ovarian tumors, looking to him as the pioneer of abdominal surgery in this community, and adopting in almost every respect his methods of treatment. I feel more inclined to operate on fibroids now than I did, because in two of my cases the operation has been seriously, I may say fatally, complicated by abscess. In fact, the only deaths that I have had in the last two years after hysterectomy for fibroids have been caused by pus in the posterior cul-de-sac, this combination demanding operation when the conditions were most unfavorable. The patients were much reduced in strength. The fibromata, fixed in the pelvis by extensive inflammatory exudations, caused the phenomena of incarceration. The operations were performed as a last resort, and both were fatal.

I feel so safe now in abdominal hysterectomy, practically by the same method which Dr. Homans describes, that I advise the operation for pain that does not yield to treatment, for persistent hemorrhage, for rapidly growing tumor. The operation of abdominal hysterectomy, it seems to me, is one of the most beautiful in abdominal surgery. I am rather inclined to remove the cervix with the tumor, in order to get drainage in that small space enclosed by the inverted peritoneal edges, fearing that the uterine canal may not be large enough for this purpose. In my experience there has always been, between the layers of the broad ligament about the stump of the uterus, abundant oozing, which can escape only by the cervical canal. I do not think that it adds much to the dangers of the operation to remove the whole of the uterus. I have not done this except in cancer, but it seems to me that in the future I shall try to make this thorough extirpation. I have been interested in everything that Dr. Homans has said as to technique, especially with reference to the bladder. I think that we cannot be too careful in looking out for some abnormal position of the bladder, especially if the tumor is a large one. One case I recall especially — I think Dr. Homans will remember it — in which the bladder had been stretched so that it was apparently attached to the posterior and upper part of a large uterine fibroid. It is not surprising that in removing the tumor a large opening was made in the bladder. This was immediately closed, and, like all the wounds which I have made accidentally in the bladder during abdominal operations, seemed to add nothing to the risk. In one instance I have removed from the female bladder a stone which had formed upon the knots by which a bladder wound, made accidentally by another surgeon in a hysterectomy, had been closed. Not that that is a very serious matter; but if the bladder had not been opened, the stone would not have formed.

Dr. Conant: I have been extremely interested in this paper, and I wish to thank Dr. Homans for showing the way to so many of the younger men who have been attempting to follow in his footsteps. It is some-

thing like two years since I first did a hysterectomy by this method, with this modification; in every case but one, of taking out everything, leaving only the vagina. That one case was fatal. I do not know whether it had anything to do with the fact that the whole cervix was not taken out or not, but that is the only case, except one other of recent date which was of immense size and done as an emergency operation rather against my wishes, but at the request of the patient. The patient did not recover from the operation. With the exception of these two cases, as far as I remember now, every case for fibroid that I have done by hysterectomy has done well, and I have had twenty-one cases in all; and I have preferred this method. I never have used the extra-abdominal method.

I understand that there has been some criticism about removing the cervix, because you do not thereby get as good support. In a certain number of cases where I have removed the cervix I have attempted to get that support by sewing up the top of the vagina and sewing the peritoneum over that, and I have yet to see a case that does not present support enough for all practical purposes.

I should agree with Dr. Richardson, that I am much more inclined to operate on fibroids than Dr. Homans would seem to be. I have had in my own family a case I took to Dr. Homans a number of years ago; and he advised the patient, unless there was some trouble, not to have the tumor removed. That young woman has never had what you call a great deal of trouble, but has been a confirmed invalid from that time to this. She has to keep quiet from ten to fourteen days in every month, unable to take active exercise; and judging from that case and several others I have seen, I am inclined to operate on a case that is not even causing a great deal of discomfort, believing that the result gained is very much superior to the amount of risk. I believe that the operation as described by Dr. Homans is almost absolutely safe, provided the patient is healthy and the tumor not excessively large.

I agree with Dr. Homans as to the necessity of perfect antisepsis. And yet this summer I did an operation on a sloughing fibroid in a woman over seventy in a very bad condition generally from sepsis, and having had just before I planned to operate a very severe hemorrhage stopped by perchloride of iron by the vagina. The next morning the operation was performed; there was no rise of temperature; recovery in three weeks. I had no expectation that the woman had any chance of recovery, and it was done as an emergency operation.

I think this operation we can safely commend as one which offers great relief to a set of annoying symptoms, and it can be done with safety and with celerity. One who has never done it is surprised at the celerity with which it can be done by an experienced operator; thirty-five to forty-five minutes is an average time, and I have seen it done in less time than that. Considering the character of the operation that is a remarkably short time, and the shock is usually very slight. If there is no sepsis the patient has almost no reaction, oftentimes no rise of temperature.

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REGULAR Meeting, February 18, 1895, the President, DR. CLARENCE J. BLAKE, in the chair.

DR. C. F. WITHINGTON read a paper on

THE ANTITOXIN TREATMENT OF DIPHTHERIA.[1]

DR. MASON: I had the pleasure of seeing a considerable number of Dr. Withington's cases, and it is quite evident that his report shows a very careful and painstaking use of this new agent. The results are certainly gratifying. I took charge of the diphtheria ward for a short time myself, and observed a certain number of cases of the same kind. I can add little to what Dr. Withington has said. The number of cases treated in this way is now over one hundred, the supply of serum being sufficient for all cases which come, and the mortality is very much reduced. The chief drawback, I think, is the fact that the cases come late. The statement of the parents is not usually accurate, and children who are said to have been sick one or two or three days present every appearance of having been sick much longer, with the throat full of membrane, nasal discharge, perhaps hemorrhagic, and the glands swollen; in fact with all the signs of a longer period of sepsis. The throat contains various germs (streptococci, staphylococci); if the infection is a mixed one, it is not amenable to treatment by this serum; and the number of deaths is greater than if the children were brought during the earlier days. That seems to be the chief reason, in fact, why the serum cannot be regarded thus far as strictly a specific for all cases.

The complications I have observed also. It seems that the skin complications are of little consequence, but the most troublesome one which has fallen under my observation has been the arthritic pain which Dr. Withington referred to, a rheumatoid condition of the joints of the lower limbs, which in two cases I have seen lasting from two to three weeks. Exactly what its nature may be is not clear, whether a septic complication or a neuritis. The pain is in the soft parts as well as in the joints, but in the cases I have seen it has disappeared without any permanent ill effect, so that it seems now as if we can be fairly confident that this remedy is safe from any serious drawbacks.

DR. WITHINGTON: I have not the tabulation of cases from which the report was drawn up, but three-fourths of all the injections were with the New York serum, and I think it is safe to say that a still larger proportion of the cases in which the injection was made early and which did not do well, were made from that serum.

DR. MORSE: I have also tested a specimen of Gibier's antitoxin according to the method given by Kossel in the *Deutsche medicinische Wochenschrift* of October 25, 1895, and in the specimen tested there were only two and a half immunization units to the cubic centimetre; that is, if, as Ehrlich and Kossel claim, 500 immunization units are necessary for the treatment, you have got to give 200 c. c. of the specimen which I tested.

I also want to speak of the diagnosis of mixed infection by the bacteriological examination of the throat. It seems to me it is not fair to say that because you find streptococci in the throat that the case is necessarily one of mixed infection. The streptococcus is such a common bacterium in the throat normally that you are not justified in making the diagnosis of mixed infection because you find it there.

I wish to speak briefly of a case which I saw in

[1] See page 249 of the Journal.

consultation with Dr. Thayer of Wenham. The patient, a girl sixteen years old, was given 50 c. c. of Gibier's antitoxin in divided doses. As far as the diphtheria went she did remarkably well. She had an urticaria on the fifth day which lasted two days, and on the eighth day after the first injection she had a sudden rise of temperature, accompanied with very severe abdominal pains which lasted two or three days. Of course, it is possible that this was due to constipation or stimulation, or perhaps to overfeeding. On the eleventh day, after she had recovered from this attack, she had a sudden rise of temperature to 104°, with very severe pains in the arms, especially localized in the shoulders and elbows, but no swelling in the joints and no redness. The pain lasted forty-eight hours; the temperature fell to normal; and she had no paralysis and made a normal convalescence.

Dr. F. H. Williams: I have been very much interested in Dr. Withington's cases, and certainly can agree with him in the wonderfully prompt results which follow the use of antitoxin when it is used early in the disease. He spoke of the difficulty of making the diagnosis by means of the bacterial test. It seems to me that difficulty is encountered more often in laryngeal cases; it seems as if the bacilli were more apt to be either overlooked or perhaps not so easy to be obtained on the swab.

As regards Behring's solution and urticaria, I think we can hardly expect to be free from cases of urticaria in diphtheria by using Behring's solution. I have used only Behring's or Aronson's solution, and unfortunately have had urticaria from both of the German makes of antitoxin.

As regards the arthritic pains and the discomfort, I have had three cases in which this was quite severe, and one case in which disturbance of this character was serious for something like six weeks, the patients suffering a great deal, and one or two presenting the appearance of periostitis. There seemed to be a tenosynovitis, a good deal of swelling of the joints and a great deal of pain, and it seemed to me that that might have been due to the antitoxin.

As regards its use as a preventative of diphtheria, it seems to me that in adults who can be constantly under observation it is at present hardly worth while to use it. In one of the cases, an adult in whom I used the solution — perhaps not enough — I used only one cubic centimetre of Aronson's solution, which is as much as he recommended, but not a very large amount — the patient on the sixth or seventh day developed a diphtheria which promised to be a severe one; but how severe it would have been I do not know, because I gave ten cubic centimetres of the Behring solution on the second day, and she did very well.

I should like to ask Dr. Withington if he knows what make of serum was used in the fatal cases where the injection was made early. I think he mentioned several cases where, although the antitoxin was used early in the disease, the patients died.

I have here a syringe which seems to me rather a simple one for injecting antitoxin. I do not know whether that is the one Dr. Withington refers to. It seems to me this syringe is useful for other purposes. They are easily sterilized and comparatively inexpensive. The ordinary antitoxin syringe costs four or five dollars. I suppose this one would cost a dollar and a half.

Dr. Osgood: I should like to ask what the indication is for the quantity of antoxin necessary in a given case, whether it be the condition of the patient, the degree of dyspnea, amount of membrane, or age of the disease. For instance, in one *résumé* of cases, five cubic centimetres were injected for all ages from three to twenty-four years, and in a case which came under my notice twenty-five were injected. What is the indication for the quantity to be injected?

Dr. Withington: A primary indication is the lateness of the case rather than the size of the patient. Cases that come late certainly require more than those that come within twenty-four hours, and if you assume that the quantity, for example, necessary for the immunization of a child from two to five years old is three cubic centimetres a proportional dose for the same child within the first twenty-four hours after the development of the disease would be fifteen to twenty cubic centimetres, and a person who first came under treatment later in the disease would have a correspondingly larger dose. I think the dose is an indefinite quantity at the best because the specimens even from the same manufacturer, vary. I am told by Dr. Ernst that Gibier has told him that successive products from his establishment will require to be used in smaller and smaller doses. But our first invoice was marked one to eighty thousand; and, instead of giving us a stronger solution, they dropped on the next lot to a solution that was marked one to fifty thousand. It is probable from what Dr. Morse ascertained as to the actual strength in immunization units of this particular make that the dose has got to be larger than was at first supposed in order to accomplish anything. Until the immunization of the animals from which the serum is derived is carried to a greater degree than has been done, the dose has got to be rather an uncomfortably large one in order to produce the desired effect.

Dr. V. Y. Bowditch: I feel some hesitation in speaking of my experience with antitoxin because I have been only ten days on duty, and this is my first experience in the infectious wards, but the results thus far, as I have observed them and from what I read and hear, certainly seem to me encouraging, to say the least, for the use of antitoxin. Since I went on duty 26 new cases of diphtheria by the bacteriological test have entered. Of these, four have died, two being collapsed on entrance and dying the same day; one case required intubation and tracheotomy, and another case showed labored breathing and nasal discharge. According to the records, there has not been extension of the membrane in any one case, a possible exception being made in one in whom the symptoms were rather septic in character. In this one there was only a slight amount of membrane on each side of the uvula, which grew less after the first injection of antitoxin, and he was getting better even with an intercurrent attack of erysipelas of the face (from which he recovered remarkably quickly), when he showed a slight extension of reddening upon the soft palate, and membrane again appeared which has again grown thinner after another dose of the antitoxin. All the other cases are apparently doing very well, with one exception, a child who has been fighting his food and treatment since he came in.

In regard to the immunizing doses; two of the nurses under my care received immunizing doses about three weeks ago. I am inclined to think the dose was small in both cases, although I could not get precise data from either patient. One of them has already been

discharged after four days' stay in the ward, the bacillus having disappeared entirely and the membrane also. She is back again at work, not on my advice, however. In two other nurses also there was no membrane this morning after a stay of three or four days.

As to what Dr. Withington has said in regard to watching the children after the membrane has disappeared, I think it a very important fact, because just after my taking up the work it was rather disheartening to see three children who had been septic cases and had done remarkably well, suddenly, while sitting up and playing with their toys, develop symptoms of collapse and die. It is, of course, possible that these children would have died under any circumstances; but with our knowledge of the depressing effect of the diphtheritic poison upon the heart, the importance of absolute rest and quiet in severe cases, even after the most acute symptoms have passed, is made evident.

As to the appearance of urticaria, when I first came on duty there were several cases of urticaria, and one case of skin disease resembling the eruption often seen after taking aromatic medicines. It disappeared entirely the next day.

As to nephritis, we have but one case, and that developed scarlet fever.

DR. H. W. CUSHING: I should like to ask if there is danger from dyspnea by sudden loosening of the membrane.

DR. WITHINGTON: I think the gentlemen from the surgical side had the feeling that there might be an exfoliation of the membrane in the larynx which it would be difficult to expel if the tube was *in situ*, and the practice was to remove the tube a little earlier in the antitoxin-treated patients in order that its presence might not embarrass the throwing off of the membrane which the remedy would tend to produce; but that any actual dyspnea did occur from the throwing off of the membrane I am not aware.

DR. FOLSOM: I have seen little of the use of antitoxin, but I have followed the literature of the subject. The gentlemen who have seen the *Medicinische Wochenschrift* of Berlin, are aware that almost every number has something on this subject. After each meeting of the leading medical society there is usually a very long discussion, sometimes occupying several pages of that very large sheet. I have no doubt that there has been very little ill result reported so far, and it seems to me quite probable that it is quite true that the ill results are very small. From some 1,500 cases that have been carefully tabulated now, there is no question but it is safe to say that the statements by certain physicians that there is a greater proportion of nephritis with antitoxin than without it is entirely untrue. I am inclined to think that a great deal of stress should be laid upon the purity of the serum as well as the strength, and the New York Board of Health is clearly wise in cautioning all people against using any serum excepting from reputed sources. If the serum is three-fourths the strength it is reported to be, that is of little consequence because whoever uses it can find out that fact; but if it contains any impurity there is a source of a great danger. I do not know that there has been caution enough used in the country generally in regard to that point, but we can get antitoxin from the best sources hereafter. I do not think we are in a position to say what the mortality is in the use of antitoxin as compared with other methods of treatment. Of course, just as soon as any community knows that there is a valuable remedy in the hospitals which is not widely available outside of the hospitals, they will send their patients much more readily, and a larger number of mild cases will be in the hospital than heretofore. In the Paris and German hospitals and here, previous to the use of antitoxin, only the severe cases were sent to the hospital. In Germany a very much larger proportion of the mild cases have been sent to the hospitals. In regard to Paris, I do not know whether it has been so.

Many of the gentlemen will remember that a little over twenty years ago we had a very severe ontbreak of diphtheria which lasted two or three years, which extended over New England, much more severe than anything we have had since. Then a mortality of 24 per cent. of average cases as they occurred in the community was not uncommon. There were exceptional epidemics — one in Williamstown in this State, and some in the small towns in Vermont; and perhaps half-a-dozen small epidemics in which the disease was very virulent — one in Conway, in the region of Deerfield, in which the mortality was 75 per cent.; some died in twenty-four hours, some before any membrane could be seen anywhere. Leaving out those exceptional cases, 24 per cent. was an average mortality that was very commonly got in a number of towns. In Gloucester, which then had a population of 16,000, I went personally to every physician and got the name of every patient he treated and the locality of the city, to investigate with regard to the condition of drainage, etc.; and the total mortality in a very large number of cases there was less than 24 per cent, so that twenty-four per cent. probably is not an exceptionally good average to get for diphtheria in all sorts of cases. If the degree of severity of the cases that come to the hospital is still very much higher than of the cases in the community, the average mortality they are getting is a small one, and probably that is the case; but we are not in a position to say definitely in regard to that, and to say how far the reduced mortality is due to the antitoxin, and how far it is due to the fact of mild cases coming in. The statement is made frequently that antitoxin is still in the hospital stage, and various physicians state that the hospital is the only place where it should be used, because the hospital is a place for experiment. It does not seem to me that is a fair statement with the statistics which have been got from 2,000 cases, and when such a conservative man as Virchow admits that there is no evidence of any harm from antitoxin, it seems to me its use is justifiable in all cases.

DR. WITHINGTON: In regard to the percentage of recoveries quoted, of course 24 per cent. in an average of epidemics is a fair mortality for non-hospital patients. I suppose most of us expect that more than three-fourths of our patients in private practice will get well; but the patients in hospitals are ill-nourished and ill-fed children whose likelihood of doing well is less than that of the average child among the better-to-do, and there is not much doubt that the patients sent into the hospital are those who are more ill than the average. The poorer classes keep their children as long as they dare, and then send them to the hospital. The hospital mortalities have been about 50 per cent. for a number of years, and it is with that figure that we ought to make our comparisons rather than with the mortality which has prevailed in the country districts and in non-hospital patients.

THE BOSTON

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## THREE CASES OF SPONTANEOUS HEMOPHILIA IN BROTHERS.

DR. JUDSON DALAND reported at the Philadelphia County Medical Society on January 9th, a case of hemophilia in a boy thirteen years of age, living in Pennsylvania at a height of 1,800 feet. The first symptom noticed was a profuse petechial eruption, which followed an attack of cholera infantum at the age of eight months. At the age of five years he began to have attacks of arthritis, which occurred on an average every two months from the fifth to the thirteenth year. Soon after the fifth year the arthritis was so severe that anchylosis ensued, necessitating the use of crutches until the ninth year, when relief was obtained from Swedish movements and massage. Between the ages of five and thirteen he had about fifty hemorrhages from the various mucous membranes, but no attacks of purpura. The attacks of hemorrhage were usually preceded by grinding of the teeth and flushing of the face, so they could generally be predicted.

Most of the hemorrhages were nasal; but on two occasions hematuria followed trauma of the renal region, and once hematemesis followed a blow on the abdomen. Later the boy accidentally bit his tongue, free hemorrhage ensuing, which lasted seven days. The nasal hemorrhage was only controlled by the application of ice to the nape of the neck and bridge of the nose, after many remedies had been tried, and large quantities of blood had been lost, so that the physician in charge thought death was imminent.

For the injury to the tongue Monsell's solution was first used, which caused a cessation of the bleeding for a short time; but soon the coagulum was loosened by the oozing of blood and saliva, so that the hemorrhage was more violent than at first, owing to the destruction of the tissue produced by the remedy. Efforts to check the hemorrhage from the use of intense cold produced by an ether spray proved valueless, as the spray could not be continued for a sufficient length of time, owing to the danger of ether narcosis and the repeated attacks of vomiting excited by the anesthetic. Compression by means of forceps was attempted, but owing to the site of the injury, which was on the side of the tongue, about two inches from the tip, it was extremely difficult to properly apply the forceps for any length of time without exciting gagging and vomiting. Ice was applied for five minutes, until the wound was partially frozen; then it was removed for a similar time, and subsequently reapplied. This was continued for twelve hours, after which the hemorrhage ceased. At that time he showed all the evidence of extreme anemia and caused his physician to think that death was imminent. Fluid extract of ergot was given in thirty-drop doses every three hours.

Dr. Daland saw the case, in consultation, for a second attack of hemorrhage from the tongue, which had been bitten during a choreiform attack. Numerous internal remedies had been tried by the attending physician, Dr. W. Duffield Robinson; but the hemorrhage had lasted six days. On the seventh day the hemorrhage decreased in quantity, ice having been applied every five minutes from six A. M. till noon. The boy showed the effects of the loss of a large quantity of blood, the heart-beats numbering 130 per minute, and the pulse at the wrist only seventy. Microscopic examination of the blood showed an enormous number of very small microcytes, many of which were mere points. There were a few macrocytes and a moderate increase in the number of leucocytes. There were no parasites nor distorted red blood-cells, and crenation and rouleauxing were normal. The blood for this examination, which was obtained at the end of a protracted hemorrhage extending over a week, showed a decidedly greater tendency to clot than on any former occasion. The Thoma-Zeiss hemocytometer showed 3,775,000 or 75.5 per cent., and Fleischl's hemometer showed 62 per cent. of hemoglobin.

The next day an examination showed well-marked evidence of quantitative and qualitative anemia, no hemic murmurs were audible, although especially searched for; the blood from the prick of the finger showed a normal tendency to clot, and the hemorrhage, which had recurred, instantly ceased when Dr. Robinson made a local application of a four-per-cent. solution of cocaine. The stomach was more retentive, and there were evidences of beginning convalescence.

The condition of the blood gradually improved, and an examination made two weeks later gave the following results: The blood emerged from the puncture freely, much more so than from a healthy individual. It was of a good color and coagulated slowly. Microscopically the blood presented a normal appearance, with the exception that there were rather more large red-corpuscles than are ordinarily seen. The microcytes had entirely disappeared. The color of the red cells was somewhat paler than normal. The Fleischl hemometer showed 70 per cent. of hemoglobin and the hematokrit showed 84 per cent. of red cells. There was no leucocytosis.

At this time the finger was accidentally cut, and hemorrhage continued for thirty minutes despite the application of ice. When a four-per-cent. solution of cocaine was employed, the bleeding was checked immediately, and did not recur.

The family history showed no hemophilia on either the father's or mother's side as far back as the fourth generation. Of their five children, however, the second at three and a half years developed hydrocephalus, and suffered from frequent severe and uncontrollable hemorrhages from the nose, of which he finally died. The third child showed no evidences of hemophilia, but died of malignant scarlet fever at two years of age. The fourth child had severe hemorrhage when he began cutting teeth, and at the eruption of the molars he bled to death.

The occurrence of these three cases in brothers, and the fact that no hereditary tendency to the affection could be traced, makes Dr. Daland's cases a peculiarly interesting contribution to our knowledge of the subject.

## CONGRESSIONAL IGNORANCE AND BUFFOONERY RESPECTING ANTITOXIN.

DURING the closing hours of the last Congress of blessed memory, a discussion arose on a bill to admit antitoxin free of duty. The chief opponent of the bill was Mr. Ray, a Republican, representing the twenty-sixth district of New York. He frankly avowed that the subject was one about which he knew nothing. We quote from the *Congressional Record:* "I do not know what antitoxin is, where it is made, what it is used for, nor whether it is animal, vegetable, or mineral, and I have inquired of a great many members of this House, but fail to find one here who has the slightest idea what this new discovery is, or what it is composed of. If it is a good thing, the owner of the patent or secret ought to come into the United States and establish an antitoxin factory here and give us an American industry; and for the purpose of building up such an industry, if its production be an industry in the United States, I oppose the bill."

Such ignorance on the part of men who are not supposed to be, but who ought to be and are not abreast of all the great questions of the day, including public hygiene, is not as astounding as it is lamentable. But Mr. Ray was not alone in not knowing what antitoxin is. His colleague, Mr. Van Voorhis, wanted to know whether the horse was not the raw material of antitoxin, and whether under the bill horses would not come in free. Mr. Henderson, of Iowa, who owned to the possession of "a stack of literature on the subject," added to his fame as a humorist by this lucid description of the antitoxin process: "They vaccinate the horse with diphtheria. Then they put him on to (*sic*) a very high grade of feeding, according to a formula which has been established, and they feed him up until his mane and tail are in the proper relations to each other, and then they bleed him; and this blood is the antitoxin." This gentleman, says the Boston *Herald*, was fully impressed with the idea that the preparation of antitoxin involved setting to work the machinery of torture on the horse, and in his most serious vein he declared that Congress should not commit itself to this animal-torturing business until they knew something about it.

Here is a fitting mission for the *Medical Record* and New York *Medical Journal* to look after the Congressmen from that State. A "whole stack of literature" consisting of excerpts from those journals' publications on antitoxin, should be at once forwarded to Messrs. Ray and Van Voorhis, who have brought this disgrace upon their State.

We would suggest that the Chicago *Sanitary News* should do the same by Mr. Henderson. Here is a new educational field open for all these journals, unless perchance they feel that it would be casting the pearls of knowledge into the mire of demagogical unworthiness.

## MEDICAL NOTES.

DR. ROSWELL PARK, of Buffalo, has recently been elected President of the Medical Society of the State of New York.

A YELLOW FEVER CONGRESS. — It is proposed to hold a congress on yellow fever during the Cotton States and International Exposition at Atlanta. The plan proposed is that the leading physicians of the city invite the leading physicians of the South Atlantic and Gulf cities, with a view of securing concert of action on quarantine measures and methods of dealing with the disease.

CHOLERA PRECAUTIONS. — Owing to the reappearance of Asiatic cholera in the suburbs of Constantinople, the Direzione della Pubblica Sanita of Italy has increased the stringency of its regulations requiring the medical visitation and disinfection of all vessels coming from the Black Sea, from the colonial French ports, from those of Russia and of Roumania on the Danube, from the Sea of Marmora, from the Ægean and from the North African littoral (excluding Tripolitania) and from Brazil. The Argentine government has formally recognized the existence of cholera in the Confederacy.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, March 13, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 52, scarlet fever 31, measles 88, typhoid fever 9.

POISONING BY ILLUMINATING-GAS. — The cases of poisoning by illuminating-gas in Boston continue to be very numerous.

HEARING ON THE STATE CARE OF CHILDREN. — On March 11th, the Committee on Charitable Institutions of the Massachusetts Legislature gave a hearing to the advocates of the establishment of a separate

board for the care of children now under the charge of the State Board of Lunacy and Charity. Some people who have given the subject attention and are interested in it are of the opinion that the children, about 2,000 in number, who are now under the care of the State Board of Lunacy and Charity, would be better cared for if separated from the other wards of the State and placed under the charge of a separate board.

Insurance of Children's Lives.— A hearing is in progress, before the Insurance Committee of the Massachusetts Legislature on a bill to prohibit insurance companies from writing policies upon the lives of children less than ten years old.

Proposed Legislation in Favor of the Keeley Cure: There is a petition to the Massachusetts Legislature which will probably be referred to a committee hearing, to the effect that the Massachusetts Hospital for Dipsomaniacs at Foxboro be compelled to employ the so-called Keeley cure in the treatment of its cases.

A Protest against the Massachusetts Medical Registration Law. — Certain individuals are seeking to have amendments introduced in regard to the Massachusetts registration law, and those who desire to minimize or obstruct the operation of the law appear to think that their object would be furthered if the hearing on the amendments proposed were held before the Joint Committee on the Judiciary, instead of the Committee on Public Health.

Mr. W. B. McVey, professor of chemistry at the College of Physicians and Surgeons, has been elected a Fellow of the Chemical Society of London, Eng., in recognition of services rendered to the advancement of science during the trial of the late Dr. Meyer.

The Samuel Winslow Surgery. — Colonel Samuel Winslow, of Worcester, has presented the Worcester City Hospital with $10,000 for the construction and equipment of an operating department, to be called the "Samuel Winslow Surgery," in memory of his father, who was Mayor of Worcester from 1887 to 1890.

Compulsory Vaccination at Yale. — Owing to the occurrence of three cases of small-pox at Yale University, compulsory vaccination of all students of the university who cannot show satisfactory proofs of having been vaccinated within two years has been ordered by the faculty.

Bequests for Portland Charities. — The will of the late Ira Farrington, of Portland, Me., gives sums varying from $2,000 to $40,000 to certain named public charities. Of the residuary estate, the two-thirds part goes to the Maine Eye and Ear Infirmary at Portland, while the remaining third is devised to the Public Library.

Against the "Christian Scientists." — The following is the full text of the measure now before the New Hampshire Legislature to govern and regulate fraudulent medical practice and the so-called Christian science or faith cure:

Section 1.— No person within the limits of this State shall treat, attempt to heal or cure any other person or persons by the so-called Christian science or faith cures.

Sect. 2.— If any person shall treat, attempt to heal or cure, or claim or pretend to heal or cure any other person or persons by either of said methods and shall directly or indirectly accept or receive any money or other thing in payment for or on account of such services, or directly or indirectly accept or receive any gift or reward therefor in any form, such persons so offending against the provisions of this act by so accepting or receiving such money, gift, reward, or other thing shall be fined a sum not exceeding three hundred ($300) dollars for each and every offence, and half of such amount to be given to the complainant, the other half to the State.

Sect. 3.— This act shall take effect upon its passage.

## NEW YORK.

A New Census.—The mayor has ordered a census of the city to be taken by the Police Board. The books required for the purpose which will be printed at the office of the *City Record*, will be ready March 20th, and it is thought that this census, which will take about two weeks to complete, will be commenced March 25th. This action has been taken at the request of the Board of Health, in order to complete the official records of the latter and enable it to fix the exact percentage of mortality in the city.

Transfer of Dependent Insane. — It is announced from Albany that the Board for the establishment of State Insane Asylum Districts has reported to the State Commission on Lunacy on the request of the King's County authorities, that the State take charge of the dependent insane of that county and also possession of their care. The Board approves of the proposal that the State shall lease the Brooklyn Asylum property at Flatbush until it can transfer the inmates elsewhere. As to the St. Johnland property, which the county authorities desire to sell to the State for $500,000, the Board expresses the opinion that much money has been wasted upon it and that several of the buildings are practically worthless, while others are very imperfect. Aside from these objections, the St. Johnland property has been found to be suitable for the location of a State hospital for the insane. The price asked, $500,000, is declared to be excessive, and the Board urgently recommends that steps be taken by the legislature to fix an equitable price by negotiation and compromise.

Death of Dr. Matthew D. Field. — Dr. Matthew D. Field died March 8th, of renal and cardiac disease, at the age of forty-two. He was a son of the late Jonathan Field, who was a brother of Cyrus W. Field, David Dudley Field, and Judge Stephen Field of the United States Supreme Court. He was born in July, 1853, in Nashville, Tenn., although the permanent home of the family was at Williamstown, Mass. After being graduated at Williams College he studied medicine in New York, under Dr. Joseph E. Winter, and was graduated from Bellevue Hospital Medical College in 1879. After serving as interne at Bellevue Hospital for eighteen months, he became assistant to Dr. Stephen Smith. In 1882 Dr. Field was appointed one of the examiners in lunacy of the Department of Charities and Correction, and also

visiting physician to Bellevue Hospital; and in 1883 he was made chief surgeon of the Manhattan Elevated Railway Company. Both of these positions he held at the time of his death. He was the author of numerous articles on nervous and mental diseases, and for the last fifteen years has frequently appeared as an expert witness in lunacy cases. He married ten years ago his cousin, Miss Lucy Atwater, who, with two children, survives him.

DEATH OF DR. BERNARD E. VAUGHN.—Dr. Bernard E. Vaughn, who was an assistant surgeon to the New York Cancer Hospital, died on March 5th. He was a native of Worcester, Mass., and was graduated from the College of Physicians and Surgeons, New York, in 1887. He was a member of the house staff of St. Luke's Hospital from 1887 to 1889.

DEATH OF DR. DUBOIS.— Dr. Robert Ogden Dubois died March 9th, in the thirty-sixth year of his age. He was a graduate of the Yale Medical School in 1881, but had practised in New York for a number of years.

DEATH OF DR. AZARIAH D. NEWELL.—Dr. Azariah D. Newell, one of the best-known physicians in New Jersey, died at his home in New Brunswick on March 9th, after a short illness. He won special distinction during an epidemic of cholera many years ago. Dr. Newell early became interested in cattle breeding, and was among the first in this country to import Jersey cattle. He was of an inventive turn of mind, and a means of conveying the life line which he devised was adopted by the government and was used until the introduction of the Lyle gun.

## Miscellany.

### THE CARE OF THE SICK AND WOUNDED IN THE JAPANESE ARMY.

CHIEF SURGEON ISHIGURO has published in the *Yomiuri* an open letter to Japanese families, members of which are now in the army, which is summarized in the *Japan Weekly Mail*. A list of clothing furnished the soldiers for protection against the intense winter cold includes cotton-flannel under-garments, great-coats of woollen cloth, blankets, gloves, head-coverings of thick fur, great-coats with fur collars, flannel shirts, knitted woollen drawers, under-garments made of paper and floss silk, thick leather gloves, and an additional blanket. A large piece of fur has also been given to each soldier. Socks lined with flannel, straw foot-gear, and heavy boots have also been lately sent for both soldiers and coolies. The regular rations of rice and meat when in camp, and rice, indian corn, and pickled plums when on the march, are increased by liberal portions of fowl, pork or beef when booty is abundant.

When the enemy is to be charged at close quarters, the soldiers strip themselves of all extra clothing so as to ensure freedom of motion, and are then obliged to stand in the snow in their ordinary winter suits. On the other hand, soldiers who were the first to arrive at the enemy's quarters in Fenghwan, Chiulien, Port Arthur, etc., found fur garments and boots of great value, which they now wear.

"As to the treatment of the wounded and diseased, it is highly satisfactory to find from the returns that lately reached headquarters how comparatively small is the number of wounded and killed on our side since the beginning of the campaign. It is also reassuring to learn that the ratio of mortality among the wounded who were brought under the care of surgeons was only four per cent. The number of deaths from sickness is rather large, but it is not to be wondered at when we remember how prevalent epidemics such as dysentery, typhus, and so forth were in Korea, and what hardships the Japanese suffered owing to change of climate and of diet. It is fortunate that owing to the resemblance more or less of food and customs among the allied races of Japan, China and Korea, our soldiers are less liable to suffer than Europeans or Americans would be under existing circumstances. The mortality among the sick was also small, only about 2.9 per cent. The total aggregate of military medical attendants in the army is 1,350, of whom 380 are surgeons and chemists, and the rest male nurses. The Red Cross Society has 138 practitioners and nurses in the army, besides a far greater number who attend the wounded and the sick at the various barrack hospitals in Japan. The medical attention in the field is thus as perfect as it can well be, but as the treatment given at home is necessarily better, I have enjoined the Medical Corps in the army to send the wounded and sick back to Japan with all possible speed. When a patient has been sufficiently restored to health in Hiroshima to be moved, he is at once conveyed to a military hospital near his home, as he will there enjoy greater facilities for seeing his family and friends.

"The progress that has been made in medicine in general and military surgery in particular, in Japan, is remarkable. In the Satsuma Civil War the mortality among the wounded was 170.5 per 1,000, whereas in the present campaign it has only been 27.2 per 1,000. A short account of the Hiroshima Barrack Hospital may be interesting. The hospital is directly controlled by Dr. Sato Susumu, and under him there are 56 surgeons and dispensers and 501 nurses. Besides these there are 20 practitioners and dispensers and 153 lady nurses from the Red Cross Society. Among the latter we find Viscountesses Kabayama and Niire, and other distinguished ladies indefatigably engaged in tending the wounded and sick, together with other nurses of humbler origin. No outsider can have an idea of the care that is taken of a patient seriously ill or wounded, be he an officer or a coolie. He is generally tended by two nurses, and the treatment he receives even surpasses that given to a patient of high rank at home. The public is gratefully cognizant of the assiduity of the court in relieving the pain of the sick and wounded and providing comforts for them. The emperor frequently sends messengers to the hospital, with grants of money to the patients, and causes the military bands to visit them and play for their pleasure. The empress-dowager, the empress, and the crown prince are equally solicitous, and the former have made bandages with their own hands to be given to the patients who, however, regard them as too precious for use and hang them on their bedsteads as mementoes of the imperial benevolence.

"The hospital is visited by princes of the blood and their wives and other distinguished personages. The Chief Abbot of the Higashi Hongwan Temple and other high priests, both Buddhist and Shinto, read prayers with any patient whose case is dangerous. The contributions sent to the hospital from almost every part of the empire are almost innumerable. Bandages are, of course, the article most needed, yet such is the supply incessantly sent by well-wishers that the hospital has not had to buy a single one. Light literature contributed by patriotic people for the use of the patients already fills one warehouse. It will thus be seen that the lot of those who receive wounds or fall ill in the discharge of their duties is not hard."

The letter closes with kind injunctions to the families of those away at the seat of war to await the return of their heroes with their stories of glorious deeds achieved by themselves and their comrades.

## DUJARDIN-BEAUMETZ.

Among the French representatives of clinical medicine, no name has been more prominently before the profession during the past ten or twelve years than that of Dujardin-Beaumetz. This has been due to his contributions to medicine and the activity and zeal which he has manifested in forwarding advances in therapeutics by the critical testing in his hospital and private practice, of new remedies and methods, and the published results of those labors. He was popular as a lecturer and as a writer, and his principal works have been translated into nearly all the languages of Europe. Some eight translated volumes of his writings have been published in this country.

The "Leçons de Clinique Thérapeutique," in three volumes, has gone through eight French editions, and is a fine, lucid exposition of the most approved methods of treating the ordinary diseases. The aim of the writer was to be *practical*, and therefore just enough consideration was given to etiology, diagnosis, pathology, etc., to obtain useful hints as to treatment.

"The New Medications" has also passed through numerous editions, and contains a critical appreciation of new methods, such as lavage and gavage, nerve stretching; new remedies, such as acetanilid, antipyrin, phenacetin, exalgin, thallin, kaisin, convallaria and sulphonal.

The "Dictionnaire de Thérapeutique" (Therapeutic Dictionary) is published in four large quarto volumes and contains full consideration of almost everything of recognized utility in the treatment of disease.

Two volumes — one on Acute, the other on Chronic Alcohol-Poisoning are characterized by much original research, containing the details and results of numerous experiments extending through a series of years. An early treatise on Acute Myelitis was long regarded as an authority. Books on Hygienic Therapeutics, on Alimentary Hygiene, on Prophylactic Hygiene, etc., have appeared during the last few years and have been largely reproduced in medical journals in this country.

Dujardin-Beaumetz began his medical studies in 1853 in Paris. He became interne of the hospitals in 1857 under Velpeau and *chef de clinique* under Behier. He was three times Lauréat of the Faculty, then Lauréat of the Hospitals, and finally Lauréat of the Institute, obtaining the prize Montyon for his researches on the alcohols. He was received as doctor of medicine in 1862. He was long physician-in-chief to St. Antoine Hospital, afterwards to Cochin. His clinical lectures at both these hospitals attracted to him a large number of pupils. At Cochin he founded and equipped two large laboratories — the one for the teaching of therapeutics, the other of bacteriology, from both of which much good work has emanated.

He was a member of the Academy of Medicine, founded, and had since been President of the Société de Médecine et de Chirurgie Pratique, also of the Société de Thérapeutique. He was long officially connected with the Council of Hygiene and Salubrity of the Seine, of which he was a prominent member, devoting himself with zeal to all questions affecting the health of Paris, and especially epidemics. In 1884, and more recently in 1892, during the cholera epidemic, he rendered important service to the prefecture of police and the citizens in the effective arrangements which he organized for fighting the epidemic. In 1893 the French government, in appreciation of his services, conferred on him the Cross of the Commander of the Legion of Honor.

He was for many years editor-in-chief of the *Bulletin Général de Thérapeutique*.

It is the same old story, of attempting to do too much work, and taking too little rest and recreation. Dujardin-Beaumetz has for several years been a sufferer from hepatic troubles, and a little more than a year ago underwent the operation of cholecystenterostomy for complete occlusion of the choledochus. The operation undoubtedly prolonged his life, but he none the less eventually succumbed to hepatic infection as the sequel. He died at the age of sixty-one.

# Correspondence.

## A REMINISCENCE OF DR. HOLMES.

Boston, March 7, 1895.

Mr. Editor: — An excellent paper on "Microscopical Reminiscences," by Dr. Palmer E. Cole, published in the New York *Medical Journal* of February 23d, contains many pleasant recollections of Dr. Oliver Wendell Holmes and pays a well-deserved tribute to his great interest in the microscope, and his ingenious invention of various useful adjustments to it in those early days of its use by the medical profession. He also quotes a passage from his last letter to him, in which he says:

"My most successful contrivance was a stereoscope of a very simple pattern, which had a great run, and has remained popular, I think, to the present time."

It is well, I think, to remind your readers that this little invention, the hand-stereoscope, is one of Dr. Holmes's contrivances, as I dare say many of them, of the younger generation of doctors, are not aware of the fact. I myself have found it a very great convenience.

Dr. Cole's paper tempts me to give you a reminiscence of my own, which fully illustrates Dr. Holmes's *bonhommie* and at the same time his honest self-appreciation.

In my early student days in the Tremont Street Medical School, after a recitation in anatomy to Dr. Holmes, at which I happened not to be present, he sang to the class a new song of his own composition — probably one of his humorous medical productions, but of this I am not quite sure. Two days after, while he and I were engaged together in the dissecting-room, I casually remarked, "I greatly regret not being present at the last recitation in anatomy." "Why?" he asked. "Because I lost the song you were so kind as to sing to the students." After a moment's pause, with his head turned down a little towards one shoulder, and a peculiar compression of the lips — an attitude and expression of the mouth which all his old friends will remember, he said abruptly, "Would you like to hear it?" "Why, of course, doctor, I should," was my reply. "Well, I'll sing it to you," was his immediate response. So he laid down his scalpel and forceps, and standing facing me, with the poor relic of humanity on the table between us, he began, and went through the whole of it, with as much enthusiasm as if he were singing to a thousand people. After the prolonged applause of his audience of one had subsided, he said, "Do you like it?" "Why, of course, doctor," said I, "no one could bear it without liking it." "Well," said he, "it *is* good. *No one but a fool would pretend he doesn't know when he has done a good thing.*"

Very truly yours,

S. L. Abbot, M.D.

## METEOROLOGICAL RECORD,

For the week ending March 2d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r. * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..24 | 30.42 | 18 | 29 | 8 | 40 | 44 | 42 | W. | W. | 8 | 12 | F. | C. | |
| M..25 | 29.98 | 34 | 45 | 23 | 76 | 63 | 70 | S.W. | W. | 15 | 9 | O. | O. | |
| T..26 | 30 08 | 22 | 27 | 18 | 62 | 53 | 58 | N.W. | N.W. | 20 | 20 | F. | C. | |
| W..27 | 29.95 | 24 | 35 | 13 | 42 | 54 | 48 | W. | W. | 11 | 4 | C. | C. | |
| T..28 | 29.58 | 36 | 42 | 30 | 79 | 68 | 74 | N.E. | S. | 4 | 6 | F. | O. | |
| F.. 1 | 29.51 | 50 | 58 | 41 | 73 | 74 | 74 | S.W. | S.W. | 14 | 10 | O. | O. | |
| S... 2 | 29.74 | 37 | 42 | 32 | 100 | 90 | 95 | N.W. | N.W. | 10 | 9 | R. | O. | .45 |
| ☞ | | | | | | | | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 2, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diarrheal Diseases. | Diphtheria and croup. | Scarlet fever. |
| New York . . | 1,956,000 | 894 | 347 | 13.42 | 20.46 | 1.32 | 5.28 | 3.19 |
| Chicago . . | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia . | 1,139,457 | 737 | 193 | 24.92 | 24.92 | 1.12 | 4.90 | .14 |
| Brooklyn . . | 1,043,000 | 396 | 126 | 7.25 | 21.25 | .50 | 5.50 | 1.50 |
| St. Louis . . | 540,000 | — | — | — | — | — | — | — |
| Boston . . | 501,107 | 282 | 68 | 7.00 | 16.95 | 1.05 | 4.20 | — |
| Baltimore . . | 500,000 | — | — | — | — | — | — | — |
| Washington . | 285,000 | 138 | 54 | 5.11 | 26.28 | 2.92 | 3.65 | — |
| Cincinnati . . | 325,000 | 167 | 36 | 6.00 | 23.40 | 1.80 | 3.00 | — |
| Cleveland . . | 325,000 | 143 | 49 | 7.29 | 16.43 | 2.43 | — | 2.43 |
| Pittsburg . . | 272,000 | 82 | 25 | 7.32 | 25.62 | 1.22 | 1.22 | 1.22 |
| Milwaukee . . | 265,000 | — | — | — | — | — | — | — |
| Nashville . . | 87,754 | 42 | 6 | 4.76 | 23.80 | — | 4.76 | — |
| Charleston . . | 65,165 | 47 | 6 | — | 4.24 | — | — | — |
| Portland . . | 40,000 | — | — | — | — | — | — | — |
| Worcester . . | 100,410 | 51 | 22 | 9.80 | 19.60 | 1.96 | 3.92 | — |
| Fall River . . | 92,233 | 44 | 20 | 13.62 | 29.51 | 11.35 | 2.27 | — |
| Lowell . . . | 90,613 | 45 | 21 | 11.11 | 24.42 | 6.66 | 2.22 | — |
| Cambridge . . | 79,607 | 34 | 5 | 8.82 | 26.46 | 2.94 | — | 5.88 |
| Lynn . . . | 65,123 | 37 | — | 5.40 | 35.13 | — | — | 5.40 |
| Springfield . . | 50,284 | 21 | 13 | 4.76 | 57.12 | — | — | 4.76 |
| Lawrence . . | 49,900 | 43 | 14 | 16.31 | 23.30 | 2.08 | — | — |
| New Bedford . | 47,741 | 31 | 11 | — | 19.38 | — | — | — |
| Holyoke . . . | 43,348 | — | — | — | — | — | — | — |
| Brockton . . | 33,939 | — | — | — | — | — | — | — |
| Salem . . . | 33,158 | 26 | 4 | 3.85 | 19.25 | — | — | — |
| Haverhill . . | 32,925 | 15 | 4 | — | 22.22 | — | — | — |
| Malden . . . | 30,209 | 10 | 2 | — | — | — | — | — |
| Chelsea . . . | 29,806 | 6 | 2 | 16.66 | 16.66 | — | 16.66 | — |
| Pittsburg . . | 29,393 | 8 | 4 | — | 25.00 | — | — | — |
| Newton . . . | 28,837 | 6 | 1 | — | 33.33 | — | — | — |
| Gloucester . . | 27,293 | — | — | — | — | — | — | — |
| Taunton . . . | 26,954 | 12 | 2 | — | — | — | — | — |
| Waltham . . . | 22,058 | 11 | 4 | 9.09 | 36.36 | — | 9.09 | — |
| Quincy . . . | 19,642 | 8 | 3 | — | 25.00 | — | — | — |
| Pittsfield . . | 18,802 | 5 | 5 | 40.00 | 80.00 | — | 20.00 | — |
| Everett . . . | 16,585 | 8 | 2 | — | 25.00 | — | — | — |
| Northampton . | 16,331 | 5 | 2 | — | — | — | — | — |
| Newburyport . | 14,073 | 13 | 0 | — | 30.76 | — | — | — |
| Amesbury . . | 10,920 | — | — | — | — | — | — | — |

Deaths reported 3,487: under five years of age 1,073; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 338, acute lung diseases 812, consumption 392, diphtheria and croup 136, diarrheal diseases 48, scarlet fever 48, typhoid fever 44, whooping-cough 18, measles 17, erysipelas 10, cerebro-spinal meningitis 8, malarial fever 8, small-pox (New York) 1.

From typhoid fever Philadelphia 24, New York and Pittsburg 3 each, Brooklyn, Boston, Somerville and Lawrence 1 each. From whooping-cough New York 7, Brooklyn 4, Philadelphia 3, Worcester 2, Lowell and Northampton 1 each. From measles New York 15, Philadelphia and Brooklyn 1 each. From erysipelas New York 3, Brooklyn and Boston 2 each, Salem, Pittsfield and Marlborough 1 each. From cerebro-spinal meningitis Lawrence 4, New York 2, Boston and Washington 1 each. From malarial fever Cleveland 3, New York and Cincinnati 2 each, Brooklyn 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending February 23d, the death-rate was 29.6. Deaths reported 6,014: acute diseases of the respiratory organs (London) 1,119, whooping-cough 94, measles 70, diphtheria 55, diarrhœa 43, scarlet fever 33, fever 20, small-pox (London and Derby 1 each) 2.

The death-rates ranged from 17.4 in Gateshead to 46.1 in Liverpool; Birmingham 21.8, Bradford 28.3, Croydon 24.5, Hull 20.5, Leicester 19.9, London 34.0, Manchester 26.6, Newcastle-on-Tyne 21.7, Nottingham 35.2, Portsmouth 25.1, Sheffield 23.1, Sunderland 22.0, Wolverhampton 30.4.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 9, 1895.

F. W. RICHARDS, assistant surgeon, detached from Naval Laboratory and Department of Instruction and to the U. S. S. "Minnesota."

JAMES STOUGHTON, assistant surgeon, detached from the U. S. S. "Minnesota" and to the Puget Sound Naval Station.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, March 18th, at 8 o'clock.

Dr. Wm. A. Brooks, Jr., will present a paper on "The Educational Aspects of Physical Training." Discussion by Drs. H. P. Bowditch and Dr. E. M. Hartwell.

Dr. J. E. Goldthwait will read a paper entitled "A Report of Cases of Metatarsalgia Treated by Correcting the Transverse Arch of the Foot." The following gentlemen have been asked to take part in the discussion: Drs. E. H. Bradford, R. W. Lovett and J. Dane.

JAMES G. MUMFORD, M.D., *Secretary*.

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT. — The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place, on Wednesday evening, March 20th, at 8 o'clock.

Papers: Dr. Richard Hogner; "Intravenous Medicated Injections According to Prof. Guido Baccelli's Method."

Dr. Edw. O. Otis: "The Treatment of Advanced (Hopeless) Cases of Phthisis."

JOHN L. AMES, M.D., *Secretary*.

## RECENT DEATH.

D. HACK TUKE, M.D., F.R.C.P., LL.D., the author of well-known works on mental diseases, died in London on March 8th, aged sixty-eight. Dr. Tuke was lecturer on mental diseases at the York School of Medicine and editor of the *Journal of Mental Science*. In 1881 he was elected president of the Medico-Psychological Association of Great Britain. His essays on psychological medicine, insanity and kindred topics have been valuable contributions to the subjects of which they treat. He was the editor of a Dictionary of Psychological Medicine, for which he wrote several essays.

## BOOKS AND PAMPHLETS RECEIVED.

Observations on the Action of Chloroform on the Functions of the Human Brain and Spinal Cord, as witnessed in Extensive Injuries of the Cranium and Brain. By Bedford Brown, M.D., Alexandria, Va. Reprint. 1894.

Twentieth Century Practice; An International Encyclopedia of Modern Medical Science by leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Vol. I. Diseases of Uropoietic System. New York: William Wood & Co. 1895.

A Manual of Diseases of the Ear for the use of Students and Practitioners of Medicine. By Albert H. Buck, M.D., Clinical Professor of Diseases of the Ear, College of Physicians and Surgeons, Columbia College, New York; Consulting Aural Surgeon, New York Eye and Ear Infirmary and the Presbyterian Hospital. Second revised edition. New York: William Wood & Co. 1895.

Materia Medica and Therapeutics for Physicians and Students. By John B. Biddle, M.D., Late Professor of Materia Medica and General Therapeutics in the Jefferson Medical College, Philadelphia. Thirteenth edition, revised, rearranged and enlarged, with special reference to Therapeutics, Toxicology, the Physiological Action of Medicines and containing all the preparations and remedies described in the U. S. Pharmacopœia of 1890, to which this work has been made to conform. By Clement Biddle, M.D., Medical Corps, U. S. Navy. With numerous illustrations. Philadelphia: P. Blakiston, Son & Co. 1895.

# Original Articles.

## CLINICAL FEATURES AND TREATMENT OF EXTERNAL PILES.[1]

BY WALTER J. OTIS, M.D.,
*Surgeon to Department for Diseases of the Rectum, Boston Dispensary.*

ALTHOUGH external piles may be regarded as of no serious import, a study of the numerous cases coming under my observation convinces me that sufficient attention has not been devoted to the significance of their various phases. In a previous paper read before this Society, I considered somewhat at length their etiology and pathology, and suggested a classification based upon the nature of the abnormal processes to be recognized as the cause of their existence. At this time I beg to offer the following observations as a conclusion to the subject, asking your attention for a brief consideration of the clinical features and treatment of these swellings and vascular tumors that are at times the cause of much discomfort and real suffering. The fact is perhaps not generally appreciated that this affection affords a practical illustration of the relation between cause and effect, inasmuch as each form of external pile is the expression of a definite abnormal process which either is taking place, or has taken place, and so plainly indicates its own history that it is possible for the experienced eye to read it almost at a glance. Take, for example, the cutaneous variety of external pile, which I classify as either *redundant*, *hyperplastic*, or *hypertrophic*. The name *redundant* indicates that its distinctive feature is a superabundance, or redundancy of the circum-anal integument, brought about by the stretching it receives from the subjacent varicose external hemorrhoidal veins when they are fully distended, as during defecation. The term *hyperplastic* indicates that the pendulous cutaneous tag associated with an abrasion, fissure, or ulceration at the anal verge, is the result of an inflammatory hyperplasia. In like manner the term *hypertrophic* indicates that the swollen, thickened, radiating anal folds, associated with an eczematous inflammation, are the result of an inflammatory, or irritative hypertrophy.

The site of external piles is confined to the region of the radiating folds of the circum-anal integument. Inasmuch as the pleating of the integument is due to the firm tonic contraction of the internal sphincter, these folds radiate in all directions from just within its lower ring-like border. From this central point they pass over the lower portion of the internal surface of the external sphincter and its lower border to disappear in the contiguous skin. For it must be remembered that the lower border of the internal sphincter is subcutaneous, and that the external sphincter partially overlaps the internal. Under no circumstances are external piles to be regarded as internal piles that have been permanently crowded down and forced outside the internal sphincter. "Certainly it often happens that internal piles of long standing become habitually extruded beyond the sphincter, and can be seen surrounding the anal outlet. Nevertheless, they are still internal piles in the clinical nomenclature, since they originate within the bowel, their protrusion being merely accidental." (Cripps.) There should be no difficulty in distinguishing between external and prolapsed internal piles; because the external pile being covered with skin will have the color of skin, and will be dry with no tendency to bleed, the internal pile, on the other hand, being covered with mucous membrane will have the appearance of mucous membrane — more or less altered to be sure, especially in cases of long standing; but with this exception it will be moist, of a deep red color, with a history of bleeding, soft to the touch, with a velvety or granular surface.

External venous piles are readily distinguished from the cutaneous by their unmistakeable sanguineous nature. Some difficulty, however, may be occasionally experienced in recognizing the thrombotic pile, by reason of the complications with which it is liable to be surrounded.

The existence of a varicose condition of the external hemorrhoidal veins can probably be demonstrated on every adult. Indeed, a varicosity of these veins is of so common an occurrence that it can scarcely be called pathological, and no cognizance need be taken of it; but when repeated and excessive venous engorgement in the varicosities has produced a degree of enlargement sufficient to have caused a permanent stretching of the external anal integument, then we have to do with a pathological condition, constituting the form of external pile implied by the term *varicose*.

The *varicose pile* is seen to best advantage when in a state of venous engorgement, the turgidity and dark-blue color, together with the fact that it can be emptied by pressure, are very characteristic, and demonstrate its sanguineous nature. Its presence, however, may be surmised even when the pressure causing its engorgement is not in force, by the fact that the external skin covering the varices has been so overstretched that it cannot assume its normal shape, but will be seen hanging about the anus in numerous loose, redundant folds. That is to say, the presence of a redundant cutaneous pile is a sure indication of a varix directly underlying it. There are no symptoms connected with this form of pile aside from the mere physical ones. As a varicosity of the external hemorrhoidal plexus is always associated with and secondary to a similar condition of the internal plexus, all *treatment* of the external varicose pile must be directed to the removal of the cause of the varicosity of the internal plexus. Practically the great majority of these cases will be found in those individuals who have been subject to internal piles for a considerable length of time, and in whom the frequent prolapse of the internal tumors has produced a laxity of the internal sphincter, thus allowing a backward flow of portal blood from veins destitute of valves, and deprived of the support that a healthy sphincter affords. Hence these cases must be regarded as intimately connected with internal piles and treated like them. It is evident, therefore, that any local treatment applied to the external varicose pile, to be of any lasting benefit, must apply as well to the varicose condition of the internal hemorrhoidal veins. The tonic effect to be derived from the daily application of cold water appears to have this double effect, and can be very conveniently applied at the time of the morning bath by repeated splashing up against the anus, or by a specially arranged anal douche.

The essential element in the production of the *thrombotic pile* is a thrombosis in one or more of the dilated veins of the external plexus. I have never seen a case of thrombotic pile in which the lesion appeared to be a hematoma resulting from rupture of one

[1] Read before the Boston Society for Medical Improvement, December 17, 1894.

of these veins. It seems to me that an undue amount of stress has been put upon straining at stool as a cause of this pile. The preconceived idea that the thrombotic pile is a hematoma resulting from rupture of a vein presupposes excessive straining at stool, causing an increased blood-tension with sudden rupture of the vein at some weak point. Whereas, I have often observed in these cases that the call of nature at the customary time was put off to a more convenient one, and that when the movement took place the pain and soreness experienced was due to the tumor already formed, though not discovered by the patient until the close of the act. This rapidity of formation is one of the chief characteristics of the thrombotic pile. Another characteristic of this pile is its livid and bluish color, not at all like that of an extravasation, but rather such as might be transmitted from a thrombus, its intensity depending upon the thickness of the tissue covering the thromboseed vein. The closer the pile is to the lower border of the internal sphincter, the more painful and annoying it is — acting in this instance like a foreign body — the lower end of the rectum being in a continual state of unrest in its attempts to eject it. Even the external sphincter will partake of this spasmodic unrest and give the tumor an occasional squeeze, thus adding greatly to the pain. Standing, walking and sitting are alike equally painful, and the pain will be aggravated by coughing or sneezing. More or less edema of the cellular tissue about the vein accompanies the thrombosis; this will be most marked in those cases in which there is a redundancy of the anal integument. I cannot subscribe to the claim of most writers that the thrombotic pile terminates in the formation of a cutaneous pile. It is only when incision has been employed in its treatment or after suppuration has taken place that a cutaneous tag is liable to form, as in these events the conditions favoring the formation of an hyperplastic pile will be present.

In the *treatment* of this pile some relief will be obtained from the use of cooling anodyne applications, as the dilute liquor plumbi subacetatis, or lead and opium wash, or Pond's Extract, but the greatest amount of relief will be experienced from incision of the vein and the removal of the thrombus.

In the *redundant cutaneous pile* the normal pleating of the anal integument into compact radiating folds is replaced, in whole, or in part, by abnormal soft, loose, pendulous folds arranged about the anus like a tuft. By placing the patient in a position that will favor hemorrhoidal engorgement, and requesting him to strain, the necessity of such an arrangement of the integument will be made manifest by the skin being rounded out, and put on the stretch from the distention of the subjacent varicose veins, at the same time the natural color of the skin will change to a livid dusky blue, thus proving the existence of a varicose condition of the external hemorrhoidal plexus, and at the same time demonstrating the manner in which the redundant pile is produced. As with the external varicose pile, there are no symptoms connected with this form of pile aside from the mere physical one of a superabundance of circum-anal integument. Accordingly, from a hygienic standpoint, extra care will be required on the part of the patient to keep the part clean by the daily use of soap and water. In many persons the failure to realize the need of proper ablutions of the anus, and its consequent neglect, is the cause of many an attack of erythema intertrigo, or even a more troublesome eczematous inflammation. The redundant pile is always associated with and a symptom of internal piles of long standing, and when such cases of internal piles have become prolapsed and strangulated, there results an edema of the external redundant pile, so that the condition present will be prolapsed internal piles surrounded by an edematous swelling of the external redundant pile, and between the two will be noticed the *ano-rectal groove*. It often happens in such cases that this external swelling is considered as a part of the prolapsed internal tissue and its removal by operation advised, whereas, it is only an external evidence that such a condition is present, and all treatment should be directed to the tissue just above the ano-rectal groove, leaving the part below the groove, which is external tissue, to take care of itself.

The *hyperplastic pile* is always inflammatory in its origin, the inflammation, in this instance, resulting in a localized hyperplasia of skin and subcutaneous connective tissue in a region covered with a loose and distensible integument. The peculiar tag-like shape of this pile is due to the limited space in which it forms, being flattened laterally in the cleft between the nates. It varies in size from a small bean to a large almond. When it occurs at the anterior or the posterior margin of the anus it is very apt to assume a crescentic shape, and in the concavity of the crescent, which is directed upward, will be found the ulceration that is responsible for its presence. In an acute state the hyperplastic pile has a pinkish-red color, is very sensitive, is more or less edematous, is firm in its texture, and very much indurated. As I have already remarked, this form of pile is pathognomonic of an abrasion, fissure, or ulceration at its base, and as might be inferred, defecation is apt to be a painful and much dreaded procedure. After the healing of the ulceration at its base and with the subsidence of the acute symptoms, the hyperplastic pile will be somewhat smaller and less indurated owing to the disappearance of the edema, and the general appearance of the pile will depend upon whether the hyperplasia of skin or subcutaneous connective tissue predominates. The *treatment* of this affection to be efficacious should be fourfold: (1) to render the stools semi-liquid, (2) the protection of the ulcer during defecation, (3) the local treatment of the ulcer, (4) the removal of the pile.

To render the stools semi-liquid, it will be necessary to regulate the diet, and to administer some laxative.

To protect the ulcer during the passage of feces, I have the patient use an ointment of boracic acid (two drachms in one ounce vaseline), to be applied with the finger immediately before stool.

The treatment of the ulcer should be carried out daily by the surgeon; the first requisite for the successful application of remedies to an ulcer situated just within the margin of the anus, being the exposure of the ulcer; in a large majority of cases this cannot be done without the aid of a small-sized speculum. The passage of a small speculum under these circumstances, if introduced slowly and gently, is by no means as painful as one might imagine. After the ulcer has been exposed, it will be necessary to touch it for the first few days with nitrate of silver to get it in an active granulating state, then blow upon its surface some dry powder, as iodoform, aristol, or europhen, for the purpose of hastening cicatrization;

lastly, place directly over the ulcer a small pledget of cotton saturated with the same powder. This will keep the ulcer flat and prevent the rolling in of its edges, and at the same time will exert a certain amount of pressure upon the granulations. In this way nearly all ulcers and fissures of the anus can be cured without resorting to forcible dilatation, or division of the sphincter ani. The hyperplastic pile, as a rule, is the only form of cutaneous pile that will require excision. This will be best accomplished by using toothed scissors which have the advantage of cutting without slipping. The pain of this operation can be mitigated by the injection of a two-per-cent.— or even weaker — solution of cocaine into the base of the pile.

By the term *hypertrophic pile*, I designate the swollen and thickened condition of the anal folds that is apt to be associated with an eczematous inflammation in this region. Some exception may be taken to my inventing a special name for this condition, and considering it as a separate variety of cutaneous pile. Inasmuch as such hypertrophies do result from an eczematous inflammation, I see no objection to giving this condition a place in the clinical nomenclature, and at the same time conceding some foundation for the popular term of "itching piles." The changes to be observed in the circum-anal integument resulting from an eczematous inflammation, will, of course, depend upon the length of time that the irritation has existed, as well as the co-existence of either of the other forms of cutaneous pile. These changes may result in giving the folds a mere thickened, or swollen appearance, or they may be increased in depth as well, causing them to be more or less pendulous; in either event the condition is one of an hypertrophy of the integument involving the entire length of the radiating folds. The principal symptoms connected with this disease are itching and moisture. The attempts on the part of the patient to relieve the itching by scratching produces excoriations, and the moisture from exudation gives to the part a whitish and macerated appearance.

The *treatment* of the hypertrophic pile should be directed solely to treating the anal eczema. The patient should be instructed to resist any inclination to scratch, and the unconscious scratching during sleep should be prevented by tying the hands with a bandage in such a manner as to check any attempt at reaching the anus, while not preventing free movements about the upper part of the body. Without going into an elaborate enumeration of the various modes of treating this most distressing and intractable affection, I will merely mention what I have found to be the most useful, namely, that recommended by Dr. White, consisting in the application of black-wash and oxide-of-zinc ointment. The wash should be applied morning and night, and from ten to fifteen minutes should be occupied in sopping the wash on the part affected, and gently rubbing it into the furrows between the folds as well as on their free borders. After the wash has been allowed to dry, the ointment should be rubbed on in a similar manner. This mode of treatment has been so satisfactory that it has become with me a matter of routine in dispensary and private cases. A not infrequent cause of anal eczema is the presence of oxyurides in the rectum, and when these thread-like worms descend to the anal margin they produce by their wriggling movements a most intolerable form of itching, and the scratching and rubbing of the sufferer brings about an eczematous inflammation that will in time result in an hypertrophy of the radiating anal folds. So in every case of anal eczema the possible presence of oxyurides as its cause must be considered. An anal eczema may in certain persons be a symptom of gout, and in such cases, without the dietetic and medicinal treatment of that condition, no local applications will avail.

It must be remembered that not in every case have we to do with a single one of these types; combinations, in point of fact, are frequent. The study of the pathological varieties will enable the practitioner to analyze each complication, and to recognize the appropriate therapeutic agents suitable for the case in hand.

## A REPORT ON THE BACTERIOLOGICAL INVESTIGATIONS OF AUTOPSIES.[1]

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In this paper we report the results of the bacteriological study of a large number of autopsies which have been performed at the Boston City Hospital and elsewhere, during a period of about two years prior to January 1, 1895.

This work has been carried on under the direction of Prof. W. T. Councilman, both in the pathological laboratory of the hospital and in the Sears pathological laboratory of the Harvard Medical School.

### METHODS OF STUDY.

As a rule, bacteriological examinations have been made from the various organs in every case which came to autopsy, the lung, liver, spleen, kidney and blood of the heart being usually examined. In most cases culture methods only have been used to determine the presence and character of the bacteria in the organs, but in a few instances direct examinations by cover-slip preparations have been employed for this purpose, where this mode of examination has seemed to be adequate.

The culture medium used almost exclusively has been the coagulated blood-serum mixture of Löffler, prepared in tubes in the form of "slants." This medium is prepared by a modification, originated by Dr. F. B. Mallory, of the method generally followed, so that large quantities of it can be readily made up in a short time. The special points in this modified method consist in firmly coagulating the Löffler blood-serum mixture (one part one-per-cent. grape-sugar bouillon and three parts beef blood-serum) in the ordinary dry air sterilizer at 80° to 90° C., in the form of slant tubes, and then sterilizing it in the steam sterilizer during three successive days, as in the case of ordinary culture media.

The main difficulty to contend with is the formation of cavities and bubbles in the medium by too great or too rapid heating, so that the smooth surface of the "slant" is destroyed. This can be avoided, however, by securing a thorough and firm coagulation before placing the tubes in the steam sterilizer. Care should also be taken, in the coagulation by dry heat, not to

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allow the temperature to get above 90° C., or the same formation of cavities may take place. The culture-medium thus prepared is opaque and of a creamy or brownish-white color, resembling in consistency coagulated egg albumin, and presents a smooth, almost perpendicular surface in the tube, upon which there is abundant space for the development of colonies.

The blood-serum used for this medium need not be collected with any special precautions to avoid contamination, and the amount of red blood-corpuscles in it is of little or no importance. The firm coagulation to which this mixture of blood-serum and bouillon is subjected does not seem to impair its nutritive qualities, as might be supposed, for one of us (Wright) has isolated the bacillus tuberculosis upon it directly from tubercular lesions, both in human and in experimental tuberculosis, a fact which is an excellent proof of its efficiency for the cultivation of bacteria.

A further proof of its great value as a culture medium is afforded by the fact that the micrococcus lanceolatus (pneumococcus) and the streptococcus grow upon it much better and more readily than upon ordinary solid media.

The method of examination of organs by cultures consists in smearing a small amount of the tissue or blood to be examined, over the smooth surface of the culture medium in a tube, by means of a stiff, flattened platinum wire, under the usual precautions, and then placing the culture in the incubator for development. After twenty-four hours the colonies which may have grown out upon the nutritive surface are examined and their character determined.

If the organ is suspected of containing large numbers of bacteria, a second tube may be inoculated from the first one by touching the sterilized platinum wire to the infected surface of the first tube, and then rubbing the infected wire thoroughly over the surface of the second. Since usually only a comparatively few bacteria will be carried over by the platinum wire and distributed over the surface of the media in the second tube, it will be found that in this tube the colonies afterwards developing will be rarely so numerous as to be confluent. If desirable, a third tube may be similarly inoculated from the second, but this is rarely necessary; and, as a rule, one tube is sufficient.

The use of this coagulated blood-serum has greatly simplified the technique of the bacteriological examination of pathological material. It possesses so many advantages over the media usually employed that we have long abandoned the use of any other form of culture at autopsies. These advantages are:—

(1) The fact that the micrococcus lanceolatus and the streptococcus grow on it much better and much more quickly than on ordinary media, such as agar-agar, while the bacillus diphtheriæ grows on it fully as well and quite as characteristically as on the blood-serum medium sterilized fractionally at low temperature, which costs so much labor to prepare.

(2) The ease with which the identification of the bacteria concerned in acute infections can be made; the microscopical examination of the original cultures made at the autopsy being in nearly all cases alone sufficient to establish the identity of the infecting organism, if this is considered in connection with the naked eye appearances of the colonies. For when cultivated on this medium the colonies of the pathogenic bacteria which are ordinarily met with in human pathology present much more characteristic appearances than when grown on agar-agar, so that to a great extent the diagnosis of the bacteria present may be made by microscopic examination alone. Moreover, in cases of poly-infection, or infection with two or more species of bacteria, the estimation of the comparative numbers of the different species is greatly facilitated by the fact that all of the colonies are on the surface, where they can assume their characteristic form, and not, as in agar-plate cultures, for instance, also in the depths of the medium, where their development is impeded, and such an estimation often difficult. We have been able repeatedly to identify with certainty three species of bacteria in a single tube and to form a clear estimate of the relative number of each. The cultural peculiarities of the species above mentioned, when grown on this medium are described elsewhere.

(3) A third advantage is the facility with which the media can be prepared as compared with the agar-agar so generally employed, the preparation of which demands great patience and considerable experience.

(4) Finally, the quickness and simplicity of the method by which cultures on this media are made at autopsies as compared with the usual methods of bacteriological examination by cultures. After a rather extensive experience in bacteriological work, we believe that the plate method and the method of Esmarch roll-tubes have no advantage over this simple method of successive "smears" when the object is to obtain discrete colonies from an infected organ or to isolate bacteria in pure culture.

Of course, when it is desired to study colonies with a low power of the microscope, the smear method is not to be used; but since in the case of the colonies of the common pathogenic bacteria such study on the usual media gives little information beyond that to be obtained by the naked eye, the simpler methods seem to answer all the requirements in pathological work, especially if blood-serum be the media employed.

## METHODS OF BACTERIOLOGICAL DIAGNOSIS.

The main object which we have placed before ourselves in this work, has been the recognition and the identification of the well-known bacteria concerned in the infectious processes which we have met with.

It is now clearly established that the important pathogenic bacteria which we have to deal with in the vast majority of cases of acute infectious disease in man are really few in number and comprise the staphylococcus pyogenes aureus, the streptococcus, the micrococcus lanceolatus, the bacillus diphtheriæ, the typhoid bacillus, and the bacillus coli communis. We have, therefore, devoted our attention towards determining the presence and identity of these species, and have not occupied ourselves with the minute study of the various unknown bacteria which have appeared in our cultures from time to time, for, either their presence could be accounted for by putrefactive processes, or there was no good evidence connecting them with the pathological conditions.

The chief characteristics of these half-dozen forms of pathogenic bacteria upon which we have based their recognition and identification are detailed in the following sections:

### THE STAPHYLOCOCCUS PYOGENES AUREUS.

This organism grows on the coagulated blood-serum in the form of golden-yellow to orange-colored, slightly elevated, shining colonies, which may in two or three

days attain a diameter of several millimetres. The great advantage in the use of this medium for the cultivation of this organism lies in the fact that the characteristic yellow color of its colonies appears immediately and not after several days, as in the case when agar-agar is used as a culture medium.

We have repeatedly recognized the presence of the staphylococcus pyogenes aureus when only a few of its colonies were present in the midst of hundreds of colonies of other bacteria, by means of this yellow color. In our work at autopsies we have not met with any other organism which produces this peculiar color, and so characteristic is it of the staphylococcus pyogenes aureus, when appearing in the cultures from an organ, that microscopic examination is hardly necessary.

The diagnosis of this organism, therefore, depends mainly upon the appearance of its colonies to the naked eye, and these considered in connection with the results of the microscopical examination to determine the morphology of the constituted organisms, are amply sufficient for positiveness. The occurrence of the other variety of the staphylococcus pyogenes, namely, the albus, has been only very exceptionally observed in our studies.

### THE STREPTOCOCCUS.

In agreement with the prevalent opinion among bacteriologists we make no distinction between the streptococcus found in erysipelas and that occurring in other conditions; but we consider that but one true species of streptococcus is concerned in human pathology, which, like the bacillus tuberculosis, is capable of inducing lesions of various forms, the form of lesion depending largely upon the tissue involved, and upon the duration of the infection.

The streptococcus grows on the coagulated blood-serum in the form of minute colonies, but more rapidly and better than upon the ordinary media. These colonies have no definite color, and when numerous are seen as fine grains or as a finely granular appearance on the surface of the medium. On microscopic examination these colonies are found to consist of cocci, in which the chain mode of proliferation may, or may not, be apparent, owing to the breaking up of the chains during the preparation of the cover-glass specimen for examination. Well-marked chains of streptococci can be usually demonstrated, however, in the fluid which is usually present at the bottom of the culture tube. This fluid constitutes essentially a bouillon culture, in which form of culture the organism finds the best conditions for chain formation, as is well known. The diagnosis of the streptococcus rests, then, upon the finding of definite chains of cocci in the culture by microscopical examination, and also upon the growth of these cocci in the form of minute colonies. The only bacterium with which the streptococcus may be confounded is the micrococcus lanceolatus.

### THE MICROCOCCUS LANCEOLATUS.

The micrococcus lanceolatus also grows in the form of minute colonies; but these are usually more moist, flatter, more shining, and generally somewhat smaller than those of the streptococcus. The appearance of the colonies is quite characteristic. On microscopical examination the colonies of the micrococcus lanceolatus are seen to consist of pairs of small oval organisms often resembling pairs of small, short, oval, lancet-shaped or conical-ended bacilli. Some variation in form and size is usually to be noted, and occasionally indications of capsule formation. In the fluid at the bottom of the culture tube longer and shorter chains may be found, which are sometimes very difficult to distinguish from chains of the streptococcus. By careful examination, however, it will commonly be found that the chain of the micrococcus lanceolatus is made up of pairs of oval organisms, while the streptococcus chain is composed of hemispherical cocci. Our diagnosis, therefore, of the micrococcus lanceolatus in cultures rests upon the minute size and the other appearances of its colonies, and the morphology of the organism itself. The pneumococcus may also be identified in the tissues by direct examination of stained preparations, by its morphology and its characteristic capsule. It may be said also that the pathogenic effect of the bacterium exhibiting the characteristics above described, has been repeatedly demonstrated on animals by the production of the characteristic septicemia after subcutaneous inoculation.

### THE BACILLUS DIPHTHERIÆ.

The morphology of this organism when cultivated upon the blood-serum, prepared by the rapid method, is quite as characteristic as when this medium, prepared by the ordinary more difficult method, is employed.

We have found this medium especially adapted for determining the presence of the bacillus in the organs of cases dead of diphtheria, because its growth on the coagulated blood-serum is so much more luxuriant and certain than upon agar-agar. In fact we consider that if agar-agar had been used instead of blood-serum in our work on diphtheria autopsies, we should have failed in many cases to have recognized the presence of the bacillus diphtheriæ, when that organism was found in very small numbers, as is most frequently the case in the viscera.

### THE TYPHOID BACILLUS.

The colonies of the typhoid bacillus on the coagulated blood-serum are round, grayish-white disks, often several millimetres in diameter, and are essentially like the colonies of the bacillus coli communis. For the identification of the typhoid bacillus we have not been satisfied with the microscopical examination of its growth on the serum, although this may give important information, if, in the fluid in the bottom of the culture tube, motile bacilli corresponding in morphology to the typhoid bacillus are seen, and the gross appearances of the colonies on the surface of the medium fulfil the requirements, but we have also applied the various tests which serve to distinguish this organism from the bacillus coli communis.

These tests are; the absence of gas-production in sugar agar or sugar gelatin cultures; the absence of any appreciable change in the litmus milk culture; the invisible growth on potato; the absence, or slight amount, of indol production in Dunham's pepton solution; active motility, and facility with which the locomotor organs, or flagella, may be stained by Löffler's method. Another distinguishing point, which we have found constant between the typhoid bacillus and the bacillus coli communis, is the less dense cloudiness of the bouillon culture of the typhoid organism.

### THE BACILLUS COLI COMMUNIS.

The colonies of this organism on the coagulated blood-serum are round, shiny, moist, and of no definite color. They grow rapidly and may obtain a diameter of several millimetres. Our experience has shown us that when colonies of this character, made up of short bacilli of a morphology corresponding to that of the bacillus coli communis, appear in a culture from an organ, they are to be regarded as colonies of that organism almost certainly, and we have generally so considered them. We have satisfied ourselves that the bacillus growing in such colonies is the bacillus coli communis, by subjecting it in numerous cases to most of the various tests for the identification of that organism. These consist in the formation of gas in sugar gelatin, sugar agar-agar, or in glycerine agar-agar suspension cultures; in the reddening, and usually the coagulation also, of litmus milk cultures; in the moist, slimy growth on potato; in the usual absence of motility; in the abundant production of indol in Dunham's pepton solution; and in the difficulty of staining the flagella by Löffler's method. The bacillus coli communis has been met with very frequently in the organs of cases of all kinds, both infectious and otherwise. In fact, so frequent has been its occurrence in our cultures that its absence rather attracts attention, and we have ceased to attach much importance to its presence, in most cases at least. From our experience we are of the opinion that the significance of the presence of this bacillus in pathological processes has been greatly overestimated.

For these reasons we have practically ignored the presence of the bacillus coli communis in reporting the results of our work. It should be understood, however, that in the vast majority of cases here reported it has been found in greater or less numbers along with the infecting bacteria in some or all of the organs.

### ACUTE LOBAR PNEUMONIA.

It is now generally believed that the micrococcus lanceolatus is the only organism which has any etiological significance in acute lobar pneumonia.

The work of a host of investigators has proven this conclusively, and has further shown that the micrococcus lanceolatus is not only concerned in the causation of the disease, but that it is frequently the infecting organism in other acute inflammatory processes, both in the lung and elsewhere. This organism was first discovered in the salivary secretion by Sternberg and Pasteur in 1880, but it was not until 1886 that Fränkel and Weichselbaum demonstrated the occurrence of the same bacterium in the hepatized lung in the majority of cases, at least, of acute lobar pneumonia.

The early history of the micrococcus lanceolatus and of the bacteriology of acute lobar pneumonia are admirably presented by Welch, in a paper published two years ago.

Welch concludes as the result of his study of the extensive literature on the subject of the bacteria concerned in acute lobar pneumonia and his own observations on fifty cases of the disease, that the micrococcus lanceolatus is undoubtedly its cause. Our own results are in harmony with this conclusion. While in a few instances we have found other pathogenic bacteria in the solidified lung, as others have done, we do not attach any significance to them, for their presence can be usually explained on the ground of secondary infection.

We have never met with the bacillus of Friedlander, which Welch considers as "probably in no way concerned in the causation of genuine acute lobar pneumonia in man."

The occurrence of the micrococcus lanceolatus in the blood and internal organs in cases of acute lobar pneumonia has not received a great deal of attention in the literature. It has been found in the circulating blood, *intra vitam*, by Belfanti in six cases, and by Boulay in two cases. Post-mortem it has been found in the blood by Pernice and Alessi in two cases, and also by Netter (one case) and Levy (one case) in intra-uterine infection of the fetus with it. In the kidneys in cases of acute lobar pneumonia the micrococcus lanceolatus has been observed by Faulhaber in 29 cases and by Fränkel and Reiche in 22 out of 26 cases. The occurrence in the spleen has been noted by Prior (five cases) and by Sée and Bordas. Welch, in his examination of ten cases, found it in the spleen in four, in the kidney in one, and in the blood of the heart in one case.

In the course of our work bacteriological examinations of the hepatized lung in acute lobar pneumonia have been made in 42 cases, and the presence of micrococcus lanceolatus demonstrated in 38. Among these 42 cases there were four cases of the unresolved or organized form of acute lobar pneumonia, in three of which the micrococcus lanceolatus was found, in one accompanied by the staphylococcus pyogenes aureus, and in another accompanied by both that organism and the streptococcus.

The staphylococcus pyogenes aureus also accompanied the micrococcus lanceolatus in one of the cases of the ordinary form. With the exception of this case and the two cases of organized pneumonia just mentioned, in all of the positive cases the micrococcus lanceolatus has been present alone or associated with the bacillus coli communis, or similar non-significant organisms. In two of the four cases in which the micrococcus lanceolatus was not found, the negative result may be ascribed to the large number of apparently unimportant bacteria which were present, and which may have prevented the development of the feebly-growing micrococcus lanceolatus.

Of the two remaining negative cases, in one the staphylococcus pyogenes aureus and bacillus coli communis were found, and in the other the streptococcus, the bacillus diphtheriæ and the staphylococcus pyogenes aureus.

In the first case there was coincident a purulent epididymitis with multiple abscesses in the kidneys, and in the second there had been empyema, thoracentesis and general infection with the streptococcus. It seems probable that the abundant growth of the various bacteria found in these two cases in the lung may have obscured the recognition of the micrococcus lanceolatus or prevented its development in the culture, if present.

As to the occurrence of the micrococcus lanceolatus in the various organs in these cases of acute lobar pneumonia, our results may be summed up as follows:

The micrococcus lanceolatus has been found in the liver in 8 out of 26 cases examined; in the spleen in 6 out of 26 cases; in the kidney in 11 out of 26 cases, and in the blood of the heart in 3 out of 11 cases. It is apparent, therefore, that there is more of a general invasion of the blood by this organism than is generally supposed.

PLEURITIDES.

The most extensive investigations of the bacteria concerned in exudative pleuritis are those of Levy, Netter, Koplick, Jakouski, Prince Ludwig Ferdinand and Prudden. The results obtained by these bacteriologists and others have shown that there is no one species of bacteria constantly associated with this condition, but that any of the common pathogenic bacteria and others may be present. From the work of Prince Ludwig Ferdinand and of Prudden, it would appear that cases in which the micrococcus lanceolatus is found have a better prognosis than others.

Of 13 cases of fibrinous pleuritis accompanying acute lobar pneumonia the micrococcus lanceolatus was found in 12, in practically pure cultures in nearly every case, the contaminating organism being usually the bacillus coli communis. In the single negative case various unknown bacteria were present. In all of four cases of purulent pleuritis coincident with acute lobar pneumonia the micrococcus lanceolatus has been present, in two cases in company with the staphylococcus pyogenes aureus. Of three additional cases of fibrinous pleuritis, not accompanying acute lobar pneumonia, the micrococcus lanceolatus was found in two (in one along with the staphylococcus pyogenes aureus) and the streptococcus in the third case.

Also, in two out of three additional cases of purulent pleuritis, not associated with acute lobar pneumonia, the micrococcus lanceolatus was present, in one case with the streptococcus, and in the other with various unknown bacteria. In the third case the staphylococcus pyogenes aureus was found (culture taken a few hours before death). This was a case of purulent broncho-pneumonia and general infection with the staphylococcus pyogenes aureus.

ACUTE PERICARDITIS.

The bacteriological examinations of the exudate in acute pericarditis recorded in the literature are not numerous.

Weichselbaum has found the micrococcus lanceolatus in several cases; Bainti the same organism in two of three cases; Steinberg in one case; and Thue in four out of five cases. Barbacci in the examination of three cases found the staphylococcus pyogenes aureus in one and the micrococcus lanceolatus in two cases, while Foureur in one case found the streptococcus.

The occurrence of other bacteria in pericarditis have also been reported by Ernst (tubercular pericarditis), and by Paviot.

In seven out of 10 cases of acute pericarditis, seven of which accompanied acute lobar pneumonia, the micrococcus lanceolatus has been present. Of the three negative cases, in two only the bacillus coli communis was found, while the other case was sterile. In one additional case of acute pericarditis in which no culture was taken from the pericardial exudate, a streptococcus septicemia was demonstrated, so that it is fair to conclude that the pericarditis was due to that organism.

It may also be mentioned that a case of hemorrhagic pericarditis after abortion was negative for specific bacteria.

PURULENT LEPTO-MENINGITIS.

The extensive literature on the subject of the bacteria associated with purulent lepto-meningitis has recently been summarized by Flexner and Barker in their interesting study of epidemic cerebro-spinal meningitis. According to these writers the micrococcus lanceolatus has been found in the great majority of the numerous cases recorded in the literature, while the streptococcus, the staphylococcus pyogenes aureus and other bacteria have been met with in but a small proportion of the cases.

This very frequent occurrence of the micrococcus lanceolatus in purulent inflammation of the pia mater has been observed in the cases examined by Flexner and Barker, as well as in those here reported.

In eight of 11 cases of purulent lepto-meningitis and in one case of the sub-acute form the micrococcus lanceolatus has been present. The staphylococcus pyogenes aureus accompanied the micrococcus lanceolatus in one of the eight cases of purulent meningitis.

Of the remaining three cases of purulent meningitis, in one the streptococcus was found and two were negative; but one of these negative cases was probably due also to a streptococcus infection proceeding from an otitis media, in the pus of which that organism was present.

Two of the micrococcus lanceolatus cases were secondary to fracture of the base of the skull, the fracture going through the petrous portion of the temporal bone, and thus, by presumably placing the brain cavity in communication with the pharynx, through the Eustachian tube, an infection-atrium for the micrococcus lanceolatus, so common an inhabitant of the throat, was provided. Acute lobar pneumonia was coincident in two of the micrococcus lanceolatus cases and in the negative case. Otitis media was also coincident in one of the same cases.

*(To be continued.)*

## HALLE AND THE AURAL CLINIC OF PROFESSOR SCHWARTZE.

BY GEORGE L. RICHARDS, M.D., BOSTON.

HAVING recently spent a semester with Prof. Hermann Schwartze at Halle, Germany, some account of his work and methods may be of interest. Halle is a manufacturing city on the river Saale in Saxony, not far from Leipsic. Outside of the university there is little of interest to Americans. The medical department is in the same inclosure with the hospital, beautifully situated on a hill away from the university proper, and with attractive grounds. Every department has its own building; and as the buildings are all new, the equipment of the medical department as a whole is as fine as any in Europe. Everything is wonderfully clean, and arranged on a thoroughly antiseptic basis, being in this respect in marked contrast with the Vienna clinics, where everything is theoretically antiseptic, but not practically so to nearly as great a degree.

There are few especially noted professors; and about the only branches foreign students can study to advantage are otology, ophthalmology and bacteriology. Behring, one of the discoverers of antitoxin, occupies the chair of hygiene, having recently succeeded Renk. Eberth, the discoverer of the bacillus of typhoid fever, teaches bacteriology; and von Hippel is professor of ophthalmology, a chair long held by von Graefe. The eye clinic is a large one, and lasts from quarter-past eight to twelve or one daily. There are usually from four to six operations. Seven thousand new out-

patient cases are yearly treated and there are seventy beds for in-patients. I saw the operation of discission of the lens for myopia of high degree several times performed, and always with good results, useful vision following the removal of the resulting cataract. Unlike Vienna, where a student can begin work almost any day, in any branch and continue as long as he pleases, paying the fees directly to the instructor, in Halle and many other German university towns every student must matriculate and arrange and pay for all courses in person at the office of the university. Private courses, as given in Vienna, are also unknown.

Matriculation is a matter of considerable red tape, and consumes much time. Foreign students must furnish a diploma from some recognized university or a certificate from some German or Austrian university. No courses can be begun or even arranged for until all matriculation formalities are finished. Then the student receives a card certifying that he is a member of the university, and from that time on is held by the same rules as all undergraduate students. Although taking only special courses and having no connection with the university proper, I was once fined five marks for failing to observe some petty ordinance of whose existence I was totally ignorant. The penalty for non-payment of the fine was confinement in the university prison for three days. The expense of living in Halle is very small, about half as much as in Vienna. It is also a good place in which to learn the German language, providing one knows something of it before, as absolutely no English will be heard.

Professor Schwartze's (clinic) occupies a portion of the same building with the eye clinic, and has some twenty-eight to thirty beds for in-patients. The out-patient clinic begins at eight A. M., and the ordinary treatment is done by assistants. Daylight is used for illumination except on very dark days. He holds a public clinic three times a week, lasting about one hour and a quarter, beginning with the examination and demonstration of cases by his students and ending with a lecture. An operation almost always follows, and students are detailed to assist. Operations are done on other days also; in fact, mastoid operations are of almost daily occurrence. It is as an operator on the mastoid that Schwartze is universally known, but before taking up that subject I will mention some points in otology, taken somewhat at random from my notes, which will illustrate the man and his methods. Everything which he does is very thoroughly done. Very complete clinical histories are taken of all house-patients, including always an examination of the nose and naso-pharynx and frequently of the fundus of the eye as well. Here, much more than in Vienna, is the intimate relation between affections of the ears, and the nose and naso-pharynx recognized, and treated accordingly. Adenoid vegetations and hypertrophied tonsils are always to be sought for, and, when found, removed. Suppuration of the middle ear cannot be healed while enlarged tonsils or adenoids are present. For the removal of adenoids, anesthesia is not used; but the antiseptic preparations are as elaborate as possible — gown, sterilized instruments and absolutely clean hands. Tonsils are removed with the Mathieu tonsillotome, and adenoids with Volkmann's sharp spoon. Any part remaining is removed with the finger-nail or Meyer's ring-knife through the nose. This method causes considerable bleeding, and did not seem to me to have any advantages over the use of a properly curved Gottstein's knife or the Lœwenberg forceps. Schwartze does not approve of removing adenoids and tonsils at the same time, in private practice. He would remove the adenoids first, and then keep the child in bed for two or three days on liquid diet and away from other children. He thinks there is some danger from catching cold and from sepsis, as he has seen one death from infection, follow the operation. If all goes well after the removal of the adenoids, the tonsils can be removed a few days later. He thinks hemorrhage after tonsillotomy is more feared than the facts warrant. This may be so, but I once saw quite a degree of hemorrhage follow the removal of adult tonsils in London, with the Mackenzie instrument. In the case of a child, if the palate is dark blue and the crying violent, there may be some danger.

Politzer's method of inflation is but seldom used; and Schwartze lays down the rule that it is never to be used for one-sided affections. Inflation is almost always done through the catheter. Instead of the usual Politzer bag the double bag of Lucae is used. This consists of two rubber bulbs connected by a short piece of tubing, the second bulb being covered with netting. At the end of the second bulb is a piece of rubber tube, and attached to this a disinfecting capsule containing absorbent cotton. From the capsule extends more tubing, and at the end there is a small quill which fits into the catheter when in position. As the apparatus is a little heavy, a hook is attached to the tubing a short distance from the disinfecting capsule, so that the whole can be suspended from the lapel of one's coat. For use, the second bag is filled from the first and then compressed with the hand. The advantages claimed for this are more uniform air-pressure and greater cleanliness. The air introduced is absolutely clean; and as all air enters the bulb from the same place and always in the same direction, there can be no sucking back into the bag or into the catheter of secretions from the Eustachian tube, naso-pharynx or nose. The diagnosis tube is always used.

Chronic purulent catarrh of the middle ear with a perforation large enough to permit the free discharge of the secretions is treated by syringing through the catheter. Should the opening in the tympanic membrane be small, it may be advisable to enlarge it. Physiological salt solution (previously boiled), or sublimate (1–10,000), is used for this purpose; carbolic solution never, as any solution of carbolic acid strong enough to do any good would cause great pain. The catheter must be absolutely in the right place, and the fluid at about body temperature. The patient is told to breathe in and then hold the breath. During the period of rest, the syringing is done. This cleans out the attic and tympanic cavity more thoroughly than any other method. The syringing is continued until the fluid comes out of the external canal free from any secretion. Syringing through the catheter, while sometimes painful, is not usually so, providing the perforation is sufficiently large to permit the free escape of the introduced fluid.

Powders are not very much used in suppurative middle-ear cases, and always in small quantity, never sufficient to prevent the free outflow of secretion.

Aural polypi are removed with the Wilde snare, and the point of origin cauterized with nitrate of silver or chromic acid. Schwartze has no faith in the alcoholic treatment for polypi, and thinks they recur because they have not been completely removed.

He is not very enthusiastic over removal of the stapes for cure of noises, vertigo, or very great deafness. He thinks the operation should only be done when noises are very troublesome, both ears affected, the patient complaining very much, and with the understanding that the expected improvement is not at all certain. The operation has the possible danger of injury to the facial nerve with resulting paralysis, owing to the near relation of the canal of the facial to the foramen ovale. He removes the stapes only through a wound made from behind. The membranous external canal is separated from its bony attachments and drawn forward with the retractor, a portion of the bony canal and attic wall is cut away and the posterior border of the tympanic membrane cut through and laid forward. The stapes is much more readily reached and foot-plate and all removed. Schwartze regards this method as preferable to operating through the canal, where there is always danger of breaking the crura and leaving the foot-plate in position. Even by this method failure to remove the foot-plate sometimes happens.

Children suffering from foreign bodies in the external canal, should, if syringing fails to remove them, be anesthetized before using forceps or any forcible attempts at extraction; and this failing after reasonable time, extraction should be done from behind. After separating and drawing forward as much as possible the membranous from the bony external canal, and the body being still firmly impacted, sufficient bone should be chiseled away to allow removal. The after-treatment consists in preventing the closing up of the external canal, and is brought about by keeping it filled with plugs of gauze until the healing is complete.

Before doing paracentesis the external canal should be made antiseptic, the cartilage scrubbed, and the nose and naso-pharynx sprayed with antiseptic solution; no anesthesia. The usual paracentesis needle is employed and the opening if necessary further dilated with a blunt-pointed knife. If there is no marked swelling to indicate the point of operation it is done in the post-inferior quadrant as here there is no danger of injuring other structures. The cut should be large enough to allow of the free escape of secretion. The catheter is to be used afterward, the nose having been previously cleaned as indicated above. The after-treatment must be thoroughly antiseptic. Fill the ear with a pledget of iodoform gauze and dress as after more severe operations, and keep the patient in bed. Paracentesis in an out-patient clinic is disapproved of unless absolutely necessary, and then only under strict antisepsis.

Schwartze regards the operation of tenotomy of the tensor tympani muscle as having only temporary results in the way of improving the hearing and lessening the noises; at times the hearing becomes worse instead of better. The method of operation is that in general use. A cut is made one millimetre behind the handle of the malleus; a suitable curved tenotome is introduced through the cut with the point in the direction of the tegmen tympani; it is then turned forward at a right angle till the tendon of the tensor is reached and with a sawing motion this latter is cut through.

Tenotomy of the stapedius may be of use when the free movement of the stapes is hindered through retraction. The operation is done with a paracentesis needle or crescent-shaped knife, and is possible only when the tendon is visible.

The operation of dividing synechiæ of the membrana tympani is not regarded as of much worth, as they tend always to re-form. In cases of perforation, with adhesion of a portion of the border to the inner wall of the tympanum, closure of the perforation never takes place.

The malleus and incus are removed for chronic suppuration in the tympanum, or in the hope of improving the hearing and removing the subjective noises. The many cases which I saw done, and the two which I myself did, were all for chronic suppuration with a large perforation and more or less destruction of the tympanic membrane. I do not know that the method differs from that in use by other operators, except that after freeing the tympanic membrane from its marginal attachment and dividing the tensor tendon the Wilde snare is used to remove the malleus. It is sometimes quite difficult to snare the end of the handle after it is severed from its attachments and possible adhesions, and has the disadvantage that in case the whole of the malleus were not absolutely free from adhesions, pulling with the snare might separate the handle from the head. The incus is removed with Ludwig's hook, being first dislocated and then brought downward and forward into the field of vision or into the external canal when it may be removed with snare or forceps. The removal of the incus is often quite difficult. It may lodge in the opening leading to the antrum or in some fissure. Sometimes removal fails with instruments, and at another time it can be syringed out. As the incus is more often carious than the malleus, it is necessary always when the malleus is removed to remove the incus also. Nothing, however, should be done in the way of operations on the external canal except under good illumination and with all bleeding stopped. One should be able to see to the deepest point. The chorda tympani nerve is sometimes injured but no evil consequence results. Facial paralysis and dizziness may appear after this operation. It usually disappears in from six to eight weeks, at latest six months, though it has lasted longer.

Healing takes place in from eight to fourteen days, and where the operation is done on account of purulent or carious conditions the results are usually good. In cases of sclerosis and when done for noises or deafness or synechiæ, Schwartze regards results as very uncertain.

Before taking up the mastoid operation I will briefly describe Stacke's method of laying bare the attic, a procedure which enters into many of Schwartze's operations. The skin cut is made in the usual manner except that the cut is carried above the ear to the fascia temporalis, and the attollens aureus muscle is cut through. All bleeding vessels are tied; the cut then extended through the periosteum to the bone, and with the periosteotome the membranous portion of the canal is separated from the bony, and the whole cartilaginous ear drawn forward with a retractor, leaving the bony external canal bare. The tympanic membrane is divided on its upper and posterior border. One now chisels away the tegmen tympani at its posterior superior angle, and so much of the adjacent bony canal as may be necessary to lay the attic bare to the antrum, frequently probing so as not to go too far in any direction, especially upwards. The bones, if not already destroyed by caries, are then seen to lie free *in situ*, and after tenotomy of the tensor, and

freeing of the incus-stapes joint, if necessary, are easily removed. With the sharp spoon preferably, or further chiselling if necessary, all carious bone in this situation can now be removed. The membranous canal, having first been slit in a direction corresponding to the long axis of the external canal, is now laid back in such a way as to cover so far as possible the bony surface previously laid open, and the original incision stitched. A drainage-tube is placed in the external canal to prevent any stenosis during healing.

The indications for the mastoid operation, as originally given by Professor Schwartze remain practically unchanged. Briefly these are:

(1) In acute primary and secondary inflammation of the mastoid, if after the use of antiphlogistic remedies, the edema and fever do not, in a few days, at most eight, disappear.

(2) In chronic inflammation with swelling, abscess formation, fistula in skin or secondary abscess in the neighborhood, even if at the time there appears to be no immediate danger to life.

(3) In chronic suppuration of the middle ear without signs of inflammation of the mastoid, as soon as any symptoms dangerous to life appear or seem at all probable, in consequence of pus-retention or the formation of cholesteatomata.

(4) In cases of otherwise incurable neuralgia of the mastoid.

(5) As a prophylactic measure in incurable fetid middle-ear inflammation, without inflammatory symptoms in the mastoid and without signs of pus-retention, as soon as it is demonstrated that the seat of pus-formation is not limited to the cavity of the tympanum.

Schwartze regards the operation as practically devoid of danger when properly done; even in those cases where no pus is found in the mastoid cells, but only inflammatory swelling of the pneumatic cells, the results seem oftentimes to be as good as in the cases where pus is found. On the other hand delaying to do the operation often costs the life of the patient. He thinks many lives are lost through too long delay or because conditions demanding operation are not recognized and acted upon.

Cholesteatomata in the middle ear and accessory cavities indicate themselves by the presence of symptoms of cerebral irritation, one-sided headache, dizziness, etc. In these cases the indication is always for the largest possible opening into the antrum from without. Should cholesteatomata be present without dangerous symptoms, the removal of the epidermal masses may be attempted with forceps, spoon, curette or syringing through Hartmann's canula, but healing is never brought about in this way. The moment more acute symptoms appear, as pain and fever, there is danger to life and the operation is urgently demanded.

Persistent incurable purulent discharge from the middle ear does not demand operation if limited to the tympanic cavity and its contents, and not involving the mastoid. In these cases removal of any carious parts through the external canal answers all the indications.

When the bone is much sclerosed and consequently very hard, the external signs of pus over the mastoid may be entirely absent and yet the mastoid cells much excavated and cholesteatomata or pus be present in large amount. In these cases of very thick bony wal there is frequently either a fistula in the external canal or a deficit in the posterior upper quadrant of the tympanic membrane; sometimes, though much more seldom, a large carious depression through which one can go with a probe into the mastoid.

Schwartze regards the opthalmoscopic examination of the fundus oculi as a valuable aid to diagnosis. Optic neuritis coincident with ear symptoms, in otherwise normal eyes, other causes for the eye symptoms being excluded, indicates intra-cranial complications such as increase in amount of subarachnoidal fluid, and urgently indicates operation. If the neuro-retinitis is very marked and apparently progressing, the prognosis is bad and an operation may be contraindicated. Hence the rule is laid down, though I cannot say that I saw it always carried out, that in cases of mastoid disease an ophthalmoscopic examination should be made. Advanced tuberculosis, great anemia, and albuminuria, a late stage of diabetes, and meningites may be considered as among the affections which contraindicate operation; and yet the operation may be demanded even in the presence of these.

The two principal landmarks in the operation are the linea temporalis and the spina supra meatum. The greatest care must be exercised in the region of the former in order to avoid the possibility of opening into the middle fossa of the base of the skull and injuring the dura. The spina sometimes, though rarely, fails; and the skin over the mastoid, usually thin, may be as a result of pathological processes quite thick. Before operation the hair should be cut quite short, and a sufficiently large area around the site of operation shaved and then scrubbed with soap followed with ether and sublimate.

The first incision should begin about one centimetre behind the insertion of the auricle, beginning one centimetre above the linea temporalis and following the line of insertion of the auricle, carried to the apex of the mastoid process. In cases of great edema or where the sides of the cut cannot be sufficiently separated, it may be necessary to lengthen the cut in both directions, or even to make an incision backwards at right angles, at about the level of the external canal. Following the first incision, which goes to the periosteum, sometimes to the bone, all bleeding vessels are tied until the field of operation is free from blood. With a dull periosteotome the bone is then laid bare, in front to the border of the external canal, above to the linea temporalis, below to the apex of the mastoid process, behind as far as needed; the prime essential at this stage being, to have a field for operation which is large enough and which is free from blood. The bone is now opened unless caries or perforation from pus has already made an opening and the amount and extent of the operation determined by the findings. Professor Schwartze never starts out to do any particular operation, but only to remove with the chisel and sharp curette all of the diseased bone. If to do this it becomes necessary to remove the whole posterior wall of the external canal or the outer attic wall, he always does so. If the mastoid wall is outwardly sound, then the point chosen to begin chiselling, will be that from which the antrum is easiest reached. This point is usually about five millimetres underneath the linea temporalis at about the level of the superior wall of the bony canal five to ten millimetres behind and on a level with the spina supra meatum. Normally at this point the bone shows a number of openings for nutrient foramina. The operation is to begin on the point of the mastoid only when there is

reason to think that the trouble is there, although in cases of extensive caries the whole apex may be chiselled away.

In cases of cholesteatomata the operation is very thorough. Here he removes the whole cortex over the involved area, and chisels away every bit of infected bone. As in cases of extensive general caries, with pus and granulations, throughout all the cells, the whole posterior and upper wall of the external canal is cut away, laying bare the cavity of the tympanum, and removing any portions of the small bones which are not destroyed. Before cutting away the wall between the antrum and the tympanic cavity a probe is always passed into the cavity from the antrum and the wall chiselled away over this probe as a guide. In all other cases, especially in sclerosis, it is superfluous to remove more than is necessary to make a way to the antrum. The depth of the antrum is usually twelve to eighteen millimetres. If the cortex is thickened or the whole mastoid sclerosed, as may come after long purulent processes, it is deeper. No absolute rule can be given as to how deep to go, owing to individual peculiarities. In general, it is not safe to go any deeper than the depth of the external canal or tympanic membrane, otherwise there is danger of wounding the facial nerve and labyrinth. Schwartze exercises the greatest care whenever chiselling near the Fallopian canal. Exceptionally the facial nerve is met with at the depth of eighteen millimetres; at twenty millimetres the greatest care must be observed and twenty-five millimetres never exceeded.

I did not gather anything new from Professor Schwartze as regards the pathology of cholesteatomata, but the measures he adopts to prevent recurrence are quite novel and unique. As is well known, cholesteatomata are often of very great extent, even encroaching at times on the dura. They have a great tendency to recur some months or years after removal. To prevent this Professor Schwartze makes the opening in the mastoid as large as possible, and then lays therein a flap of skin. Before doing this, however, in all operations where the bony external canal has been chiselled away, the membranous portion previously held forward with a retractor is slit on a director from its attachments to the tegmen tympani as far as the pinna, and a smaller cut then made at right angles to the first at the outer end. The two free ends of the membranous wall are next stitched to the upper and lower border of the periosteal surface of the original incision over the mastoid. This throws the external canal and the cavity made by the operation into one. A skin flap from three-fourths of an inch above to one-half of an inch in width below and parallel with but longer than the first incision over the mastoid is now dissected off behind, being left attached above. This flap is brought forward and laid in the cavity from whence the cholesteatoma was removed. The resulting bare space is left to granulate and cover with new epithelium. The transplanted flap is held in place by one stitch in front and by a wad of sterilized gauze. The wound as in all operative cases is dressed with iodoform and sterilized gauze and the dressing unchanged for seven days.

I was able to follow such a case for some weeks after the operation. The skin flap lived and became attached in its new situation and the place from whence it was removed was covered over with new skin. The cavity in the bone being entirely covered with healthy skin and granulations, there is no chance for the cholesteatoma to again form. Schwartze has now followed this plan for many years and finds that there are practically no recurrences. While there is a large cavity which always remains open behind the ear, that must be protected from the entrance of water and dust and from the cold in winter, yet these persons are able to work and become practically sound as far as the ear is concerned. I saw such a case four years after removal of a cholesteatoma with healing of the skin flap in hole. There was a little black stuff in the hole but no symptoms had appeared in the meantime.

In this connection it may be said that cosmetic effects are not considered in Germany to anywhere near the extent they are in this country, where no larger permanent hole will be left behind the ear than is absolutely necessary, and where as a general thing granulation from the bottom and final filling up and obliteration of the cavity is allowed and favored. On the other hand, in Schwartze's clinic, in cases of cholesteatomata the hole is always kept open, being touched with nitrate of silver from time to time to prevent the filling up with granulations; while in Professor Lucae's clinic in Berlin, nearly all the mastoid cases had large permanent holes behind the ear occupying the site of antrum and aditus.

The possible dangers in the operation are venous bleeding; injury to the facial nerve and semicircular canals and opening the middle fossa of the base of the skull. Venous bleeding can come from large veins in the bone which communicate with the jugular or its branches. I once saw quite a degree of hemorrhage come through the floor of the external canal from the jugular, necessitating stopping the operation, which, however, was practically completed. Injury to the latural sinus causes profuse bleeding, easily controlled by tampons of iodoform gauze. The operation, if not completed, must be postponed some eight days or so until the resulting thrombus is fully organized. No ill results follow.

Much more common than troublesome hemorrhage is injury to the facial nerve, and, moreover, not only in that portion of the Fallopian canal which is above and behind the round window and on the lateral wall of the antrum, but also farther under and outward on towards the stylomastoid foramen, a portion of the canal that shows in its course many variations. In most cases the paralysis disappears after several weeks or months. Only when the nerve is completely cut through is it complete and lasting. The paralysis may not appear until some time after the operation. It is then the result of a perineuritis extending from point of injury, caused probably by pressure from blood exudation in the canal. Whenever during an operation the region of the Fallopian canal or the round window is reached, the greatest care is exercised and an assistant told to watch for the slightest sign of involuntary swallowing so as to avoid if possible any injury to the nerve; still it sometimes happens.

Injury of the labyrinth may follow the use of the chisel as well as the drill, and death can result from purulent inflammation. Loss of hearing, dizziness, and disturbance of gait always follow injury to the labyrinth.

If by accident the dura is laid bare or even opened, no danger is likely to follow if the operation is as nearly aseptic as possible, and has no more unpleasant

results than does laying bare the lateral sinus. In fact the dura is often laid bare in operations where the caries is very extensive. One precaution must be taken, namely, that the edges of bone have no sharp points which can by any possibility injure the dura. The change of dressings should be made with great care so as to avoid any injury to the granulating surface.

Schwartze sutures the skin wound and allows it to heal by first intention only in those cases where with the exception of the antrum the bone is quite sound, or where one can be certain that every bit of diseased tissue has been removed. In all other cases the wound must be kept open until all evidences of pus in the tympanic cavity or antrum have disappeared and the whole wound has granulated at least on the bottom. The first dressing is changed only when stained through.

For instruments, chisels with straight and concave cutting edges varying from two to eight millimetres in width and eleven centimetres long; two large chisels with concave cutting edges eighteen centimetres long, and ten and eight millimetres wide are used. They are used with great care, and I never saw a false cut made. As a caution to be observed he directs that, in order not to injure the lateral sinus, the chisel should never be directed backward. The chisel must never be held at right angles to the plane of operation, but always slanting as nearly horizontal as possible. The chisel must always be directed from the linea temporalis, never towards it. The sharp curette of various sizes is very much used in exploring and removing soft bone, fungoid granulations, and cheesy pus, followed by the chisel if, as is usually the case, the curette does not completely remove the diseased tissues. Retractors of several sizes, right and left tenotomes, and incus hooks, several knives, a number of artery forceps and a mallet complete the necessary instruments. Chloroform is used for anesthesia as in most of the German clinics. With all its advantages it is dangerous, and I have several times — not only in Schwartze's but in other clinics, seen the course of an operation suddenly interrupted because the patient had ceased to breathe properly and the pulse had almost stopped. Artificial respiration is commenced, the windows opened, and when the breathing and the circulation again becomes natural the operation is resumed.

During some ten weeks attendance on Professor Schwartze's clinic I saw but one death, and that a case of tuberculous caries of both mastoids in a child of five years, after removal by operation of nearly the whole mastoid and the laying bare of a large area of the dura on each side. I do not think the operation hastened death, which occurred some three weeks after from exhaustion; the lungs were also tuberculous.

In general Schwartze's operations impress one by their thoroughness, the careful attention to every detail, the absolute antisepsis, both as regards operation and operator, the extreme care used, and the entire absence of hurry; mastoid operations lasting frequently an hour and even longer. I was there in the summer semester, and most of the operations were on account of caries or cholesteatomata, that is, chronic cases, though there were some acute mastoid cases. The wards were usually full of operative cases. As soon as convalescence after mastoid operation is established and healing well along, a metal spring one-half inch wide, provided at one end with an ear-shaped expansion and passing from one auricle over the head to the wound, is employed to hold the dressing in place.

While the basis of the preceding article consists of my notes, I have, in addition, availed myself of the section on Operations in Schwartze's "Handbuch der Ohrenheilkunde," where an exhaustive account of the present state of operative otology may be found.

## Clinical Department.

### A CASE OF PANCREATIC CYST TREATED BY DRAINAGE; RECOVERY.[1]

BY MAURICE H. RICHARDSON, M.D.,
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N. D., an Italian laborer of twenty-six, I saw at the State Almshouse on November 22, 1894, with Dr. Howard. He had always been well and strong up to his present illness. He first noticed a painless swelling in the pit of the stomach six weeks before operation. This swelling gradually grew larger, and became so painful that he could not sleep at night. There was no interference with digestion or bowels. The appetite was good. The pulse and temperature were normal, the urine contained nothing abnormal. There had been some loss of flesh. The general appearance was poor, and the face cachetic. I found a non-resonant, fluctuating tumor, as large as an adult head, in the epigastrium, a little to the left of the median line. The tumor was so large as to interfere seriously with his comfort, embarrassing respiration and distending tensely the upper half of the abdomen. I made a diagnosis of cyst of the pancreas, from the position of the tumor and from the history of the case. Immediate operation was decided upon; for though the patient's condition was not serious, it clearly indicated the necessity of interference.

A cut was made between the umbilicus and the ensiform cartilage. The stomach and transverse colon presented themselves on opening the peritoneum. The omentum having been carefully separated, the tumor was brought into view, and its contents aspirated. "The fluid was viscid and of a dirty-gray color. The reaction was alkaline, and the specific gravity 1.008. There was about one per cent. of albumin, and a considerable amount of mucin. There was a little sediment which showed an occasional fatty degenerated cell. The fluid did not emulsify fat, and had no diastatic action. It had no digestive properties." [Report of Dr. W. F. Whitney.]

About two pints of fluid were withdrawn by aspiration. The parts about the exposed portion of the tumor were then walled off with gauze, and a free opening was made by which about two quarts of fluid escaped. Exploration with the finger showed a large cavity situated in the retro-peritoneal space usually occupied by the tail of the pancreas. The bodies of the lumbar vertebræ could be felt, as well as the pulsations of the abdominal aorta. No stone could be detected.

Separation of the tumor was attempted; but, on getting into the deeper parts, the adherence to the surrounding structures was so intimate, and the blood vessels were so numerous, that no further efforts at

[1] Read before the Boston Society for Medical Improvement, December 17, 1894.

enucleation were made. The cyst wall was stitched to the abdominal wound, and a large drainage-tube was inserted. The subsequent history was marked by rapid diminution in the amount of fluid discharged. Three weeks after the operation a specimen was sent to Dr. Whitney which possessed all the characteristics of pancreatic fluid.

In the surgical treatment of pancreatic cysts the important question to be decided is between drainage and radical removal of the sac. In two previous cases reported by the writer, drainage in the manner described above proved effectual. In one [2] the discharge grew gradually less, and the wound became perfectly healed in a few months. A second [3] healed perfectly; but a year or two later the cyst reappeared, and proved fatal. A second laparotomy was performed [4] for symptoms of acute intestinal obstruction due to pressure upon the duodenum by the re-filled sac. At the autopsy a large opening was found between the cyst and the stomach. The cause of death was acute obstruction. A third case, referred to me by Dr. F. C. Shattuck,[5] though of doubtful pancreatic origin, was cured by complete extirpation of the cyst. The patient, a child of thirteen months, referred to Dr. Shattuck by Dr. Bowers of Clinton, had had a tumor in the abdomen since birth at seven months. The tumor rapidly increased in size, and embarrassed both circulation and respiration. The whole abdomen was filled by a fluctuating tumor, apparently arising from the left, supposed to be a hydronephrosis. The tumor was dissected from its attachments back of the peritoneum in the pancreatic space. There were numerous large vessels supplying it, and it was crossed by the splenic vein. The tail of the pancreas was spread out over the anterior wall of the tumor. Seven pounds of fluid were removed. Drs. Fitz and Whitney reported the tumor to be of retroperitoneal origin, and congenital. More detailed examination showed true pancreatic tissue in the cyst wall. My own observations convinced me that the pancreas was involved only by pressure from behind. The child made a good recovery, and has grown up into a very robust boy.

In this case enucleation was rapid and easy. By avoiding the splenic vein and by tying the pedicle *en masse*, no hemorrhage ensued.

In the fourth case, reported above, attempts were made to remove entirely the cyst wall. The difficulties met with early in the attempt led to its abandonment, and the usual practice among those who have operated for this condition was followed.

Recently a case has been reported [6] in which the whole cyst was successfully enucleated. That such a method is preferable, if safe, is doubtless true. Yet if the cyst is a dilatation of the canal of Wirsung, it is evident from the excessive discharges during the first few days after drainage that the digestive processes will lose permanently a large amount of pancreatic fluid by the method of total extirpation. Numerous observations show that complete healing takes place after drainage in most cases, and that the danger from this method of treatment is slight. It seems, therefore, well to follow this method generally. If the cyst can be easily separated from its attachments and thoroughly extirpated without excessive hemorrhage, it seems best to attempt such a procedure, in view of the possible re-accumulation of fluid, with its remote dangers, as in the second case cited. The attempt at enucleation should be abandoned, however, as soon as it is evident that the cyst is so thoroughly incorporated with the surrounding pancreatic tissues that it can be separated only by cutting.

In the case reported above the diminution of discharge has been rapid, and the general improvement has been marked. Nine weeks after operation I found the cavity of the cyst obliterated, nothing remaining but a sinus through which a probe could be passed nearly to the bodies of the lumbar vertebræ.

[2] Boston Medical and Surgical Journal, January, 1892, p. 86.
[3] Ibid., January, 1891, p. 111.
[4] Ibid., May, 1892, p. 441.
[5] Published in the Transactions of the American Surgical Association for 1892, p. 211.
[6] Sharkey and Clutton: St. Thomas Hospital Reports, xxi, p. 271, 1893.

## FRACTURE OF THE HUMERUS FROM AN UNUSUAL CAUSE.[1]

BY G. H. MONKS, M.D.

A WELL-BUILT and apparently healthy man, aged twenty-seven, entered the Boston City Hospital August 8, 1894, having sustained a transverse fracture of the right humerus, just below the insertion of the deltoid. The patient had first been seen by Dr. John Gillespie of Roxbury, who recommended him for admission to the hospital.



The following is the history of the injury. The patient, C. C., and a friend of his were testing their strength of arm by that well-known method of grasping right hands, palm to palm, over a table, and while the elbows rest upon the table each tries to push his opponent's hand down. I do not know of any English name for this sport, but Hamilton says that the French call it "tourner poignet," or the game of turning wrists. The illustration shows the position taken by the contestants in this sport. The elbows should, however, perhaps be a little nearer together than is shown in the photograph, so that the forearms may be more nearly parallel.

C. C. and his opponent were both exerting considerable force, and for a time neither seemed to gain any advantage, until, finally, C. C. began to push his adversary's hand down. At this moment the adversary

[1] This paper will appear in the Boston City Hospital Medical and Surgical Reports, Sixth Series.

made a sudden effort to regain his position, using all his force, when with a snap, so loud that it could be heard all over the room, C. C.'s humerus broke, and his arm fell helpless upon the table.

As to the subsequent history of the case there is nothing noteworthy. The arm was immobilized in the usual fashion in coaptation splints, shoulder-cap, etc., and in the course of six weeks the fragments were firmly united without deformity, and soon after this the arm appeared to be as strong and useful as before the accident.

Several cases of fracture of the humerus during the carrying out of the above form of sport have been recorded, but so few are they as to justify the publication of each new case. Hamilton states that he has seen one case of the kind, and refers to six or seven others which he has found recorded. Stimson ("Treatise on Fractures") mentions the fact that Gurlt gives eleven cases of the sort. It is probable that some of Gurlt's cases are included among those mentioned by Hamilton.

The mechanism of a fracture of the humerus from the above cause is interesting. Apparently the break is occasioned mainly by a twist, or torsion of the shaft of the bone. While the muscles of the upper end of the bone are attempting to rotate the bone inward, the adversary's force (transmitted through the bones of the forearm to the lower end of the humerus) tends to rotate it outwards. The upper end of the bone is therefore forcibly rotated inwards and the lower end is rotated outwards. It is thus evident that when these two opposing forces are great enough, and the other parts do not give way, the bone must break by extreme torsion somewhere between the two extremities. This must be especially true when the fracture occurs while the forearm is flexed at a right angle on the upper arm. When, however, the shoulder is brought much nearer to the hand, as is often the case during the greatest efforts, and a fracture occurs, another element probably comes somewhat into play, and the bone breaks by a combination of torsion and outward bending. Torsion still remains, however, the principal mechanical factor in causing the break.

While the etiology of this fracture is undoubtedly muscular action, it seems to be a rather unusual form of it, and the break might be described as one due to torsion of the shaft of the humerus, caused by prolonged muscular action against resistance suddenly and unexpectedly increased.

In closing, I wish to say that careful investigation was made respecting the existence of syphilis in this case, with negative result. There was also no evidence of the presence of fragilitas ossium.

## Medical Progress.

### RECENT PROGRESS IN PATHOLOGY.

BY W. T. COUNCILMAN, M.D.

(Concluded from No. 11, p. 258.)

WOODHEAD in a lecture on the present state of our knowledge of the etiology of carcinoma, gives a critical review of the most prominent articles on the subject. He comes to the conclusion that in many of the rapidly growing carcinomas, coccidia may be present in great numbers. In others growing more slowly they are less numerous. There is no proof that these organisms are the actual cause of the disease, and it is possible that infection with the parasites is favored by weakening of the life energy of some of the epithelial cells, so that they cannot oppose the entry of the parasite into them.

Ruffer, in a number of publications, gives a study of the cell inclusions in carcinoma. In his investigations he usually used Biondi stain. Ruffer and Plimmer investigated principally the carcinoma of the breast, in which the parasites were found to be more frequent than in the same tumors originating elsewhere. They think that the parasites of other species of carcinoma present a striking similarity to those of the breast, and that they may be varieties of the same species. The more rapid the growth of the carcinoma the more abundant were the parasites. The bodies described by Ruffer as parasites have much similarity with the descriptions of other authors, particularly with Foa. They regard the structures as described by Darier and Wickham as altered epithelial cells, leucocytes, etc. Pfeiffer has also studied the parasites of carcinoma. He thinks that many cells, which have up to the present been regarded as tissue cells, should be considered as parasites. Where there was a growth of carcinoma into striated muscle, he thinks that the cells found within the muscular fibre were neither due to proliferation of the muscle cells nor were cancer cells which had entered into the muscle, but should be regarded as parasites. He assumes that the parasites at a certain stage can take on forms which are very similar to the tissue cells and which he regards as forms of zoospores. In the warm stage slow ameboid movements can be recognized in them. In sections he found nuclear figures in these supposed parasites of the same character as those found in the carcinoma cells. He thinks that the supposed small-cell infiltration of the stroma surrounding the carcinoma alveoli is due to the wandering of new zoospores in the tissue. Adamkiewitz has the same view. He thinks as Pfeiffer, that the carcinoma cell is not a cell of epithelial origin, but a parasite. He implanted small masses of carcinoma in the brain of rabbits, and found that the animal soon died, from which he concludes that the carcinoma has a specially poisonous character which is due to a toxine produced by a parasite. As is well known, he made various attempts to heal carcinomas with a material derived from them, which he called cancroidin. The animals experimented on died of meningitis and encephalitis.

Geissler and Kopstein repeated the experiments of Adamkiewitz in a careful aseptic manner, and found that pieces of tumor could be implanted in the brain without producing any results. Korotneff describes structures in the carcinoma as parasites, which are entirely different from the structures described by other authors. He distinguishes two stages of development, in one of which the parasite appears as an actively moving ameba, and in the other this has divided into secondary spores.

Numerous authors have taken a different ground as to the nature of these bodies. Malassez, who was one of the first to believe in the presence of the sporozoa in carcinoma, in a later publication takes a very reserved position. Delépine, although he thinks there is much similarity between certain forms of the supposed carcinoma parasites, and the young coccidia in the liver of rabbits, finds on the other side such great differences between them that there can be no thought

of identity. Coates thinks that many of these supposed parasitic bodies in the carcinoma may be referred to endogenous cell division. He compares the carcinoma in its development with the infectious granulation tumors, and concludes that if a parasitic organism is found in them it has nothnig to do with their etiology. He finds many features of carcinoma which are opposed to the assumption of its parasitic character. The manifold forms under which the tumor may appear would make it probable that every carcinoma must have a separate parasite, and further there remains unexplained the peculiar preference of carcinoma to develop in the later years of life. Kasin, after an investigation of about 60 carcinomas, concludes that the existence of coccidia in them cannot be proven. The structures described as coccidia he thinks may be produced by irregular divisions of the nucleus by a peculiar form of intra-cellular multiplications. Stroebe describes in the carcinoma inclusion-cells which have been regarded as parasites. He thinks there may be some possible connection between these intra-cellular bodies and the condition of the nucleus described by Klebs as hyperchromatosis. He thinks that the parasitic etiology cannot be explained in some forms of carcinoma. And from what we know of carcinoma in general it is not impossible that a parasite belonging to the class of sporozoa may be shown to be the etiological factor; but no proof has been given for such an assumption, and no proof has ever been offered that any of the supposed bodies described really have a parasitic character. Cornil thinks that enclosed leucocytes may be responsible for those structures in the cells which have been regarded as parasites. Kosinsky shows that degenerative processes can so alter the ordinary structure of the carcinoma-cell that the appearance of cellular inclusions may be given. Rebbert regards the much-discussed cell-inclusions as nothing but degenerated epithelial cells or their nuclei. The degenerations are most marked in the cells which are concerned in the formation of epithelial pearls. One cell can be completely enclosed by the surrounding cells, or a portion of one can project in the protoplasm of another and become enclosed in this. Then a section through the cell would give the appearance of a free body within the cell. These enclosed cells or portions of cells can undergo various metamorphoses which can affect both the protoplasm and the nucleus, and different pictures similar to parasitic inclusion could arise. The radiated striation at the edge of the enclosed bodies, on which so much stress has been laid by Foa and others, he thinks is probably due to the striated border of the enclosed epithelial cells. Unna describes a hyaline degeneration of the epithelial cells of the carcinoma which he thinks may give rise to the conditions described as parasites. The hyaline formation may appear as a diffuse, uniform hyaline infiltration, or as sharply circumscribed structures within the cell. The circumscribed hyaline degeneration may produce structures of the most manifold forms which may be limited to a single cell, or may affect the cells in the periphery. He describes eight different forms of this hyaline degeneration, many of which are very similar to certain animal parasites in the encapsulated condition. Klein has found that structures similar to the fuchsine staining bodies described by Russel were produced in the tissue cells in the course of different pathological processes. He thinks that the Russel bodies have the same origin as those described by Altman and which are due to cell-granulation, which have become enlarged with assimilation of fat. Raum found in eight carcinomas by using Altman's methods, the round granules described by Altman in the cell protoplasm. Ohlmacher has found in certain substances the power of precipitating saffranin from solutions, and thinks that many of the supposed parasites are simply artifacts. Similar bodies to those described in carcinoma have been found in other pathological conditions, and even in normal tissues. The Darier bodies have been found in an angio-keratoma. Unna found them in cutaneous horns, and in most of the hyper-keratoses. Peterson saw similar bodies in condylomata and in the warty growths of the glans penis. Similar bodies have been found in the normal epithelium of the cornea and in skin tuberculosis. Virchow found similar structures in normal epithelial cells and in the pearly tumors. In the Hassels bodies from the thymus of the fetus and the newly born, and in the epithelial masses enclosed in the prepuce there are structures which are similar to the supposed sporozoa described in carcinoma. Kenner has found the inclusions described in carcinoma in simple inflammatory affections of the skin.

A number of papers on the same subject were read at the Eleventh International Congress. These consisted generally in a repetition of the statements embodied in this report. Foa again described the bodies which he found enclosed in cancer cells, and which he considers as parasitic in character. These bodies consist of a central mass of protoplasm surrounded by a double-contoured membrane. The protoplasm frequently shows radiating lines extending from the centre, which give the bodies the appearance of rosettes. These segments do not separate, as is the case in the malarial organism. The central body becomes enlarged, the protoplasm atrophic, and it then divides into small masses, which may be spores. Cell-multiplication takes place around the parasites but not in the immediate vicinity of them. They are found both in the primary focus and in the most recent metastatic nodules; and in doubtful cases of carcinoma the presence of these parasites may make the diagnosis easy.

Cornil read a paper on various modifications of the nuclei and cells in cancer which have been regarded as parasites. The nuclei of the cancer cells frequently divide into a number of secondary nuclei, many of which may remain in the protoplasm, complete division of the cell not taking place. Some of these nuclei can take the most varied forms, and may give rise to the appearances which have been considered as parasites. White blood-corpuscles may also be found in and between the cells, and these may give rise to similar appearances. He does not think that theoretically there is anything against the parasitic idea of carcinoma, but up to the present all of those who have most prominently advanced this view have limited themselves to the similarity of the morphology of the supposed structures to various forms of parasites. He thinks that all of the supposed parasites are probably nothing more than modifications of cells and nuclei. Morpurgo finds the position of these bodies in the cells has some relation with the poles of the ochromatic spindle, and are found where the so-called intermediate bodies of the nuclei are found. Their sizes and shapes vary. They may be round or egg-shaped, or have the shape of a cap or crescent. He thinks it is probable that they consist of free chromatic sub-

stances which have been given off from the nucleus. The observations of Kasin and Duplay on the same subject correspond with those of Cornil. They do not think that any proof has been offered that the bodies are parasitic.

Frænkel has also studied these carcinoma bodies with a variety of stains and with different methods of preparation, and comes to the conclusion that they are intra-cellular structures of the most varied character and origin, and not parasites. Galleotti comes to the same conclusion.

In the general discussion of the subject Schrom says there are two chief questions to be considered: first, whether the objects described in the carcinoma are really parasites; and, second, if they should be proven to be such, whether there is any genetic connection between them and the carcinoma. He thinks that some of the bodies may be parasitic. Foa and Ruffer defend the parasitic view, and think that the parasitic nature can be shown by various modes of staining. Even in fresh tissues they have been able to stain the parasites by teasing the tissues in methyline blue.

A general consideration of the articles referred to here shows that the question is still undecided, but by far the weight of evidence is opposed to the parasitic idea.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, December 17, 1894, DR. C. F. FOLSOM in the chair.

#### PATHOLOGICAL SPECIMENS.

DR. M. H. RICHARDSON: I have here two drawings of the appendix. The first appendix was removed on Saturday from a man in whom the probable diagnosis lay between some pancreatic affection and a pylophlebitis. He had a clear history of appendicitis antedating the operation some weeks. The symptoms finally pointed to the upper abdomen. We made the incision between the ensiform cartilage and the umbilicus. Nothing whatever was found there. The appendix was, however, clearly diseased, as demonstrated by digital exploration. It was delivered through the high incision without much difficulty. The patient was immediately cured of his symptoms, and has been well ever since. The other appendix, which I removed three days ago, shows the reason why some of these cases are so rapidly fatal. The opening was so close to the cecum that it discharged fecal matter with extreme rapidity. Although the operation was done within twenty-four hours from the appearance of the initial symptom, the peritonitis was already so extensive that there was practically no hope. The man died to-day. I think this case throws much light on the etiology of these rapidly fatal cases, their fulminating course being due not so much to the nature of the poison as to the size of the hole.

This kidney shows a perforating gunshot wound for which I performed nephrectomy four days ago. The renal vessels are extensively lacerated. The ball, after tearing the renal artery and vein, passed through the substance of the kidney transversely. The course of the bullet was extremely curious and interesting. The missile entered the abdomen to the left of the median line, just above the umbilicus. It could be felt in the right lumbar region under the skin. A straight line between these points would be likely to pass through the transverse colon, the duodenum or stomach, pancreas, and right kidney. The aorta and inferior cava would also lie in its track.

Clinically there were only the signs of hemorrhage. No intestinal or gastric wound could be found even after the most thorough search. The retro-peritoneal tissues were extensively infiltrated with blood as far even as the left kidney. A tear could be felt in the right kidney.

After nephrectomy and control of the hemorrhage, it was found that the bullet had entered the left lobe of the liver, passing thence through the quadrate and right lobes to the kidney. This course is impossible in the prone position. Erect, the liver must have hung much lower, so as to bring the hole in the liver to a level corresponding with the wound of entrance. The patient died two days later. At the autopsy no peritonitis was found.

I have here another kidney, which I removed to-day. It is of great surgical interest. The patient was a boy, six or eight years of age, who came to the Massachusetts General Hospital during my service in the spring. I examined him carefully many times, and made a diagnosis of sarcoma of the kidney. Operation was advised. This was declined, and the boy left the hospital.

A few days ago he came to the Eliot Hospital, where I decided to perform nephrectomy. The tumor was very large, filling the whole left side of the abdomen and projecting beyond the median line to the right. It was irregular along the right border.

On opening the abdomen I found the descending colon lying across the tumor. The mesentery of the descending colon lay directly in front of the right half of the growth. The intestine and mesentery were separated with the greatest care from the anterior wall of the tumor. After this the kidney was delivered without much difficulty. It was necessary, however, to scoop out the softened centre of the mass, in order to make the whole small enough to be delivered through the wound in the parietes, although this incision extended from the rib to the crest of the ilium in the left linea semilunaris. After breaking up the central portion of the tumor, there was little or no difficulty in separating the rest of the growth from its capsule.

The greatest danger in the operation upon these cases is from hemorrhage. There was no difficulty in this case, however, in controlling the vessels. The tumor is soft and friable. A large portion is wanting. This was removed by breaking up the centre of the softened mass in order to deliver the whole tumor. The wound by this procedure was extensively infected by malignant cells. It was hoped that no evil result would follow, for the parts were cleansed as thoroughly as possible before closing the abdominal wound. The renal vein shows a portion of the growth projecting into the blood-current. The long duration of this growth, with its extensive and intimate attachments, makes the prognosis as to early recurrence very unfavorable.

February 13, 1895. The patient made a rapid recovery. Late in January I found a most extensive

recurrence. Some of the stitch-holes in the skin were infected. The boy died early in February. The rapid and extensive local reappearance of this disease seems to point unmistakably to an auto-infection at the time of operation.

Dr. S. J. Mixter: This is a tumor of the orbit that I removed Saturday from a woman of thirty, who had noticed that the eye had been protruding five years. The eyeball had become very much pushed out downward and forward. It was a question whether the mass was a cyst of some kind, perhaps a suppuration spreading from the frontal sinus, or a solid tumor. She had been told by one physician that it was a bony tumor of the orbit. It proved to be this soft solid, which was enucleated very easily; and when removed, the eye fell back into its normal place. The incision was made through the eyebrow. The tumor, which is the size and shape of a pullet's egg, extended well back to the sphenoidal fissure. The lachrymal gland was also removed, as it was adherent to the mass, though it proved to be free from disease. Dr. Whitney reports that the growth is an endothelioma.

Dr. W. J. Otis read a paper on

### THE CLINICAL FEATURES AND TREATMENT OF EXTERNAL PILES.[1]

Dr. S. J. Mixter: The reader has covered the ground so thoroughly that there is very little left to add. The description he has given of the anatomy of the parts is most useful, especially in cases where one has to operate on internal hemorrhoids associated with this edematous external hemorrhoidal condition which he has mentioned. It is, of course, much better to stop at this fold and not burn deeply into the skin, as is sometimes done, and in that way give the patient pain from the superficial burn.

In regard to the thrombosed pile, Dr. Otis spoke of the danger of making tabs or tags from incision. The relief is so immediate and so great that I think, if there is pain, incision is always the best treatment, as it can be so simply and easily done with the injection of a little cocaine. I find that cocaine of one-fourth per cent. is as effective as the two-per-cent. solution; and I believe some of the fatal cases of cocaine-poisoning have been from the injection of the two-per-cent. solution about the rectum going directly into the vein. So, in this region, I think it is advisable to use weak solutions.

There is one method of treating the hypertrophic or eczematous pile which I have used with great success in cases where thorough local treatment with blackwash and ointments has failed, and which has not been mentioned by the reader or any other authority on this subject, so far as I am aware: that is, excision of the redundant folds of skin. The hypertrophied radiating folds rub against each other, and are macerated with the retained secretion. By removing the most prominent of the folds by elliptical incision, and sewing up the wounds with fine silk or catgut, all the folds are flattened out, and there remains a smooth surface that in a short time becomes perfectly free from the eczematous process. In this way I have cured, not only the eczema about the anus, but also secondary eczema of the scrotum that had resisted all local applications.

As Dr. Otis has stated, one of his photographs was taken from a patient of mine who had ulcerating as well as hypertrophic piles. I removed the whole mass by dissection, and united healthy skin to healthy mucous membrane, and the patient is perfectly cured.

Dr. J. C. White: There is only one point on which I would say something, and that is with regard to this last variety of conditions described by the reader—simple eczema around the anus arising ordinarily from pure and simple pruritus, often entirely independent of any hypertrophy of the region; and it applies as well to those cases in which eczema is present from other causes. The care of the parts after stool, is, I think, one of the most important measures in the treatment of these distressing cases; and often a simple remedy will be sufficient to prevent future attacks of any severity at all, namely, the use of wetted paper at the water-closet. I always direct a certain quality to be obtained, very smooth satin-finish. Take three sheets, fold upon themselves so that it makes them square and dip them in water just before using. Take successive portions to cleanse the parts. In that way no friction is set up. Wet paper cleanses the parts thoroughly and keeps them clean until the next stool. Very often the omission of this for three or four days is sufficient to bring back the eczema. That I insist upon as of chief importance in the treatment of pruritus of these parts. Then, I think you get an advantage in having the parts smeared at night with some simple ointment like the mixture of camphorated and carbolated cosmoline, smeared on gently. With these two measures I think we get our best success in the treatment of this condition.

Dr. Richardson: I have listened to this paper with a great deal of interest, and learned very much from it as I did from the paper a year ago from Dr. Otis. We are obliged at our clinics to treat these forms of anal disease, though perhaps we have not any special experience with them except such as we gain there from observation. I was surprised to know you could cure a fissure of the anus by anything but etherization and stretching. I must say that is one of the most gratifying of surgical operations I know of, and I can see no injury from it. I think I should prefer the rapid cure to prolonged treatment, but I am glad to know it can be cured by such a method.

[1] See page 269 of the Journal.

## Recent Literature.

*Laboratory Guide for the Bacteriologist.* By Langdon Frothingham, M.D.V., Assistant in Bacteriology and Veterinary Science, Sheffield Scientific School, Yale University. Illustrated. Philadelphia: W. B. Saunders, 1895.

This book consists essentially of a collection of the more common technical methods used in the bacteriological laboratory, outlined in the simplest possible form, and is designed as a work of reference for the beginner. The directions for the preparation of the ordinary nutrient media are not the best with which we are acquainted, but are in some respects needlessly long and complicated. We are glad to note, however, that the rapid method of making blood-serum culture tubes has been included. A serious omission is the absence of any directions for the staining of the flagella, or locomotor organs of motile bacteria.

There are other books on bacteriological technique in English which better serve the purpose for which this one is intended.

THE BOSTON

# Medical and Surgical Journal.

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## DEGENERACY IN LITERATURE.

The recent epidemic of Yellow Books, Green Carnations, and New Women in England has led Mr. Charles Dudley Warner to descant, in his own charming way, upon the "yellows" in literature, and to recommend scientists, alienists, and psychological investigators to study it, believing that it signifies disease. A study of the sort was made some years ago, before the works above mentioned appeared, by Max Nordau, whose work,[1] an English translation of which has just appeared, has naturally given rise to much criticism.

Nordau was well equipped for the task. In the first place he had been a literary critic for many years, and was thoroughly familiar with modern literature; and, in the second place, he was a disciple of Lombroso, to whom he dedicates his book, and, although not a physician, he had studied neurology and psychiatry very thoroughly, and he was familiar with the morbid mental phenomena of hysteria, insanity, degeneracy and crime. With such a mental equipment, then, which few mere critics could possess, he gives himself to the investigation of certain modern tendencies in art and literature, and to a careful diagnosis of the mental condition of some of the writers who are looked upon by many as leaders in modern thought. As a result he finds that these tendencies have their sources in the degeneracy of their authors, and that the enthusiasm of their admirers is for manifestations of more or less pronounced moral insanity, imbecility, and dementia.

Such a study has a special interest for the physician. It might seem at first that the interest would be pathological rather than therapeutic, for it is hard to believe that Mr. Aubrey Beardsley or Mme. Sarah Grand, for instance, would wish to be cured of the morbid manifestations which are their chief title to fame. Nevertheless, if books or works of art inculcate absurd and anti-social doctrines, they exert a disturbing and corrupting influence on the minds of many people, especially the weak-minded and hysterical, and those who adopt every new doctrine which they think is fashionable. We have seen within a few months how much mischief a degenerate labor agitator can do if chance puts him into a position of power. The neurotic are often rendered much more unstable and sometimes actually insane by dwelling too much upon the teachings of the degenerate, whether it be in the field of anarchy, socialism, theosophy, Christian science, or spiritualism. It therefore becomes the duty of the physician, as a matter of public mental health, clearly to recognize the mental stigmata of degeneracy, and to point out to the public the true nature of such conditions and the leading facts in mental therapeutics. Unhealthy books may do as much harm to the mind as certain disease-germs do to the body, and it is not against the so-called pornographic writers alone that the public should be warned. The physician too often gives precise directions about the preparation and ingestion of food for the body, while he too seldom considers what food is offered to his patient's mind, and yet a course of Ibsen or Tolstoi or Maeterlinck may do as much harm to some persons as devilled kidneys, Welch rabbits, or mince pie. Only by a careful study of the mental stigmata of degeneracy can the physician prescribe what Nordau calls the effective treatment of the disease of the age: "Characterization of the leading degenerates as mentally diseased; unmasking and stigmatizing of their imitators as enemies to society; cautioning the public against the lies of these parasites."

The physical stigmata of degeneracy have been fully enumerated by Morel, Lombroso, and others, and they are beginning to be mentioned in the modern treatises on nervous diseases. Nordau enters into an elaborate study of the mental stigmata, which are also well recognized by alienists and neurologists. The sensory apparatus of the degenerate may either be so irritable that a slight stimulus will give rise to a very marked response, as when a color, a bar of music, or an ordinary verse of poetry fills him with a strange thrill or shudder; or it may be so sluggish as to be aroused only by the horrible or the disgusting. In the one case he may be proud of his excitability, and consider it proof of deep appreciation; in the other he may, with equal pride, consider himself above the ordinary prejudices of humanity. With it all he is selfish, conceited, and extremely emotional. A sensation ordinarily excites many different cells in the cortex, giving rise to many associated ideas, but the healthy mind disregards the unimportant ideas thus aroused and concentrates its attention only on those which are essential. The degenerate is weak of will and incapable of fixed and prolonged attention; the unimportant ideas thus called into activity are not ignored, but fill his mind with a jumble of vague and obscure notions, which suggest strange relations. A word may thus call up other words of similar sound but with no related significance, and we have the phenomena known as echolalia. With vague and obscure ideas and unusual associations,

[1] Max Nordau, Entartung, Berlin, 1893; Degeneration, New York, 1895.

the degenerate is incapable of clear thought and often becomes a mystic, finding hidden significances and inexplicable relations in all things. In other cases, with a prevalence of insistent ideas, his own personality becomes the dominant factor in his world. In cases where the sensory apparatus requires powerful stimuli, or where sexual or other animal instincts give rise to insistent ideas, he may show evidences of sexual perversion or denounce the ordinary laws of decency and custom, and be classed as an anarchist. In other cases he may be filled with vague and impractical ideas for the regeneration of society, and preach social reform. In most cases, unhappily for society, he has a morbid desire either to talk or write, and indulges that desire constantly.

Having thus set forth the leading mental characteristics of degeneracy, which, it is needless to say, are in the main accepted, Nordau carefully studies the works of various writers and brings forward the evidence that they are degenerate. Rossetti, Swinburne, Paul Verlaine, Mallarmé, Tolstoi, Wagner, Péladan, Maeterlinck, Walt Whitman, Baudelaire, the French symbolists and décadents, Oscar Wilde, Ibsen, Zola, Nietzche, and many others; all are weighed in the balance and pronounced degenerate. In many cases there can be no question as to the justice of his criticism; apart from their writings the known facts in the lives of such men as Poe, Verlaine, Maupassant, Nietzche, and Tolstoi prove his assertions. In the main, too, although his criticism is savage, and his pleading at times special, the facts which he adduces more than substantiate his assertions.

It cannot be denied that in some cases the degenerate may possess great abilities in some directions; but he will be, as Lowell said of Poe, "three-fifths of him genius and two-fifths sheer fudge." He lacks harmony and balance; his mental development is unequal, and his influence does not advance the world, but it is always unhealthy; like Carlyle, "he leads men into the wilderness — and leaves them there."

It is the tendency of the degenerate to associate with his kind, the criminal in the Mafia, the mystic in a religion, the esthete in a cult. Around those groups cluster many neurotic persons, who suffer from "the restless seeking of the modern soul for a new ideal," who are also incapable of clear thought, and who call that deep which is only obscure, incomprehensible and absurd. When the sect is once formed, many others join simply to keep in the fashion or to seem "advanced," and with them come the social strugglers who are always eager to win money or notoriety by adopting every new fashion. Degeneracy is not necessarily, as Nordau thinks, a disease of our age, but its stigmata may be found throughout literature, in the mysticisms of the Neo-Platonists, the sentimentalism of Rousseau, or the indecencies of the Marquis de Sade. It is, however, to-day, with the dearth of great writers, much more in evidence, and it becomes the physician's duty to show that these idols of the present are false gods.

## THE TREATMENT OF TETANUS BY ANTITOXIN.

A SUCCESSFUL case of tetanus treated by antitoxin is reported by John Marriott, M.B., in the *British Medical Journal* for January 19th. The symptoms began six days after the injury,— a wound in the jaw caused by a missile from a catapult — with inability to open the mouth and difficulty in swallowing.

On the ninth day, when the patient was first seen by Marriott, the muscles of the neck and back were stiff and prominent, and there was well-marked trismus. Disinfection of the primary focus, administration of chloral, as much as could be swallowed, and physostigmine (one-one-hundredth grain) hypodermically during the next two days did not relieve the symptoms, which became gradually more aggravated, until on the fifth and sixth days there was slight opisthotonos. Two and one-half grammes of Tizzoni's antitoxin were now given hypodermically, the necessary punctures causing strong opisthotonic spasms. On the next day, the thirteenth of the disease, the patient was able to swallow a little. One gramme of antitoxin was given. The following day swallowing was easier. Speech was unintelligible, but the patient could make himself understood by writing in large jerky scrawls; one-half gramme of antitoxin was given. During the following days gradual improvement was noted; one-half to one gramme of antitoxin being given daily until the twenty-first of the disease, when none was administered. The jaws at this time were still clenched. On the twenty-second day of the disease, early in the morning during sound sleep, the jaws opened sufficiently to allow the tongue to protrude and when the patient woke the tongue was caught and firmly held. The irritation caused renewed spasms, embarrassment of respiration, cyanosis. Attempts to administer chloroform only made matters worse. Although the patient appeared to be dying, one-half grain of morphia with one-fiftieth of physostigmine was given with success in causing relaxation of the spasm and release of the tongue. Recovery from the morphia was followed by a return of the spasms, which were successfully combated by antiotxin. The case progressed to recovery, and the patient was able to sit up on the thirty-fourth day.

The second case, which terminated fatally, was one of tetanus neonatorum, treated by antitoxin. The child had been delivered by a midwife, and the disease appeared on the eighth day of life. On the fourth day of the disease it was first seen by Dr. T. Lacy Firth, who reports the case.

On the fifth day of the disease there was jaundice, the eyes were tightly closed so that the lids could not be opened. The jaws were set and the neck and spine rigid. The child could be held in a vertical position by holding the legs only. A part only of the milk introduced into the mouth was swallowed, and the attempt produced cyanosis and short feeble cries. Nutrient enemata, chloral and bromide constituted the treatment.

On the seventh day an alarming collapse took place, but passed off. Similar attacks followed on succeeding days. On the tenth day there were eight of these attacks and the child died in the evening of this day.

On the eighth day of the disease four-tenths of a gramme of antitoxin was given subcutaneously, and during the ninth day two injections of the same amount were given.

On the tenth day eight-tenths gramme was given at one dose. The total given thus was two grammes.

In the *Quarterly Medical Journal* two cases of traumatic tetanus in adults are reported, both successfully treated by antitoxin. The antitoxin treatment was begun on the ninth and third days of the disease, respectively. In both these cases repeated doses of the antitoxin were required, and improvement in the symptoms followed each dose.

It is interesting to note that in the last case, a child of six, a rash resembling measles with fever and swell-

ing of the cervical lymphatic glands appeared on the twelfth day after the discontinuance of the antitoxin.

That a similar rash has been often noticed after the antitoxin treatment of diphtheria is interesting, and points to the fact that the rash may be due to the serum itself and not to the particular antitoxin it contains. The failure of the serum in the case of tetanus neonatorum cannot be considered as indicating its unreliability, when we consider that the eighth day of the disease in a new-born child is a much later period with reference to effective treatment than it is in an adult. The possibility of complications, as suggested by the jaundice and attacks of collapse, which are not usually symptoms of tetanus, is present. Unfortunately no autopsy was allowed.

In the light of these cases, and in view of the widespread reports of the success of antitoxin in diphtheria, we think the time has come when public authorities should take into serious consideration the general problem of assuring to the profession and to the public reliable sources of supply of such antitoxins as are proved by sufficient and careful experience to be curative.

## MEDICAL NOTES.

THE CHARCOT MONUMENT. — The secretary of the committee to solicit contributions to the Charcot monument fund states that the contributions up to the present time amount to six hundred and forty-two dollars.

INTERNATIONAL CONGRESS OF GYNECOLOGY AND OBSTETRICS. — The next session of the Congress will be held at Geneva in September, 1895. It will discuss the subjects of Eclampsia, Displacements of the Uterus, Pelvic Contractions, Pelvic Suppurations, and Abdominal Sutures.

A STATUE OF DR. GROSS. — The House passed the Senate bill granting permission to the American Surgical Association and the Alumni Association of the Jefferson Medical College to erect a statue to the memory of Samuel D. Gross in Washington. The bill appropriates $1,500 for a pedestal.

THE FOUR YEARS' COURSE AT THE UNIVERSITY OF PENNSYLVANIA. — According to the *University Medical Magazine*, the extension of the medical course to four years has resulted in only a trifling reduction in the number of students. There are now 815 students in the Medical Department, 369 of these being members of the third-year class.

MEDICAL PHONOGRAPHY. — A society of medical phonographers has recently been organized in London, and publishes, under the joint editorship of Drs. Gowers and Taylor, a monthly periodical, *The Phonographic Record* of *Clinical Teaching*, which is intended to familiarize readers with the best outlines used in medical phonography, and at the same time increase their medical knowledge.

A NEW SOURCE FOR CARLSBAD WATER. — The *Münchener med. Wochenschrift* notes that the report published in several newspapers to the effect that a new thermal spring had been discovered in the Vindobona House in Carlsbad is false. The report had its origin in the fact that during the recent cold spell a water-pipe burst; the water flooded the cellar and was heated by a baking oven.

VOLUNTARY ADMISSION TO NEW YORK HOSPITALS FOR THE INSANE. — The following resolution relating to the voluntary admission of patients to hospitals for the insane was adopted at the session of the New York Medico-Legal Society of March 13, 1895. "*Resolved*, That in the opinion of this Society the adoption of a law permitting voluntary admission to hospitals for the insane of such persons as may desire treatment therein is eminently proper and desirable, and the highest interests of the insane demand the incorporation of such a law among the statutes of the State of New York."

THE MEDICAL PRACTICE ACT OF TENNESSEE. — The Medical Practice Act of Tennessee has been declared unconstitutional. The *Southern Practitioner* says it has no tears to shed over this decision, and thinks the best thing to be done is for the Legislature to repeal the whole thing and get it out of the way. Evidently the bill was badly drawn, and there should be a better one. A State without a good medical practice law in these days will be a dumping-ground for quacks and incompetents.

THE CENTENARY OF THE DISCOVERY OF VACCINATION. — The directors of the German Vaccine Institute, at Weimar, are arranging for a celebration, to be held in 1896, in commemoration of Jenner's discovery of vaccination. In connection therewith there is to be an exhibition of old and new vaccine instruments; of apparatus for the preservation of lymph, etc.; of original manuscripts on small-pox and vaccination; on the inoculation of sheep-pox and cattle-plague in pre-Jennerian days; of squibs on vaccination, of medals, portraits, and autographs of prominent inoculators, vaccinators and anti-vivisectionists, etc. — *Medical News.*

LUXURY IN THE BRITISH HOUSE OF PARLIAMENT. — An editorial of the London *Daily Telegraph* furnishes the following: "Now that Roman luxury, invading the once austere precincts of Parliament, has added baths for the use of members to the Palace of Westminster, a result which might fairly have been predicted has duly followed. The speaker's secretary has received a communication from a professional 'masseuse,' who suggests, enclosing her card, that arrangements should be made to provide members with facilities for obtaining the treatment of massage, which would, she says, be found 'a great recuperative agent to the nervous system after a great mental strain following on a long debate.'"

EUROPEAN BACTERIOLOGISTS VERY BUSY. — A Berlin correspondent writes as follows to the New York *Sun:* "This is no time for young bacteriologists to come to Europe for instruction. The men foremost

in that field of science are too busy with their investigations to give lectures. A young bacteriologist who has been hanging around the University of Berlin for a couple of months, catching up any scrap of information that his professors might be good enough to let drop, and looking through microscopes in the hope of discovering something that he didn't know before, went off to Paris to see if he could find some one there who would stop his investigations long enough to give him instruction. He found even a worse state of affairs there. The scientific men of to-day who are making investigations in bacteriology are as feverish as were the prospectors for gold in California half a century ago."

Two Simple Expedients. — Dr. Cocksedge, of Wales, places the following "tips" at the disposal of his brethren (*Medical Press*): If you have a fatiguingly deaf patient to talk to, place the ear-pieces of your binaural stethoscope in the patient's ears, and talk into the chest-piece, and you have an excellent ear-trumpet. If you leave your spectacles at home, being old and a presbyopic, make a hole with a pin in the corner of your visiting card, and you can read your clinical thermometer or anything else.

Intravenous Saline Infusions. — At a recent meeting of the New York Surgical Society, reported in the *Annals of Surgery*, Dr. Dawbarn stated his opinion that the amount of fluid usually recommended for intravenous infusion in hemorrhage was ridiculously small. A smaller amount than a quart will seldom be of much use, and in bad cases this should be repeated several hours later, as indicated. It is a bad rule to replace the blood lost at an operation only by an equal amount of salt water. The inward bleeding from shock, especially into the patient's own veins should not be forgotten. The chief advantage of infusion is the effect of the bulk of the fluid, which makes possible effective action of the heart.

Antitoxin in Ocular Diphtheria. — Dastot (*Annales d'Oculistique*, January, 1895), apropos of a second case of ocular diphtheria successfully treated by antitoxin, writes as follows: "It is superfluous to dwell longer on the important rôle played by sero-therapy in the treatment of ocular diphtheria. Thanks to the injections of antitoxin, we are henceforth in a fair way to check the invading progress of pseudo-membranous exudates. Better still, the last two stages of the malady may be suppressed, with all the dangers that accompany them. In short, with this new treatment, when the false membrane has once disappeared the disease itself is conquered. If treatment is begun at the proper time it will not be forty-eight hours before all the menacing symptoms have disappeared, and the physician will be gratified by the rapid and complete recovery."

The Newest Thing in Medical Titles. — The British nurses who are seeking to obtain official recognition and registration on the same lines as medical practitioners, are meeting half-way the legislation for that purpose which they so much desire by adopting a distinctive title, says the *Medical Press*. M.R.B.N.A. is the affix which they append to their names, and it is to be interpreted as Member of the Royal British Nurses' Association. The day is soon coming when clinical reports will read something as follows: A case of —— reported by A. Jones Smith, M.A., M.D. (Oxon.), F.R.C.P., and B. Jenks Robinson, M.A., M.D. (Cantab.), F.R.C.S., in which the successful result was largely due to the faithful and untiring efforts of the nurse, Miss Sarah J. Gamp, M.R.B.N.A., etc.

Abuse of Medical Charity. — A remedy for the abuse of medical charity is offered by a "Young Subscriber" in a letter to the *Medical Record*. He suggests that the victim of such abuse "the next time, and whenever he has need of a consultation or has a patient to send to a specialist, avoid the man who daily robs him by indiscriminate dispensary work and pick out instead one who regards the rights of his fellows. There are men at the heads of dispensary classes throughout the city enjoying large special practices who boast that they have no care for the financial standing of their dispensary cases so long as they furnish the required material for clinical purposes; and as for the complaining doctors they say, 'let them go and be blanked.' So long as they can do this and keep the support of the general practitioner they will hold the same views. The moment they find it affecting their pockets they may at least cease to pride themselves upon their dirty treatment of their professional brethren. Let the non-dispensary men look to their rights and they will soon have less wrongs."

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, March 20, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 70, scarlet fever 56, measles 92, typhoid fever 4.

A New Hospital for Contagious Diseases at Brookline, Mass. — A hospital for contagious diseases has been built by the Brookline Board of Health at an expense of $5,000. The hospital stands on high ground, and has plenty of open space about it. The buildings are of wood, single-story, pavilion style, each having three small wards, with a hallway through the middle of the building, a kitchen, cellar and attic, and can together accommodate from twenty-five to thirty patients and attendants. The walls are plastered with Windsor cement, to permit of easy and thorough cleansing, and all the rooms except the kitchen have open fireplaces. The smaller building is for diphtheria patients and the other for scarlet fever. There is also provided a probationary ward.

Antitoxin in Connecticut. — The Secretary of the State Board of Health of Connecticut announces that a bill has been submitted to the legislature looking to the protection of the public, from imposition by the sale of spurious or inefficient antitoxin products,

that may be offered by unscrupulous dealers. It is the purpose of the bill to provide some guarantee for the quality of whatever may be found in our markets.

NEW YORK.

CORONERS IN NEW YORK. — The select committee of the Medico-Legal Society of New York to whom was referred the Senate Bill No. 81, "An Act to amend title four hundred and ten of the Law of 1882, entitled an Act to consolidate into one Act and to declare the Special and Local Laws affecting Public Interests in the City of New York," so far as the same relates to coroners, have reported to the legislature as follows: (1) That they approve of the bill, and recommend its passage; (2) That they recommend that the coroner so to be hereafter chosen should be a counsellor-at-law of at least ten years' practice; (3) That they recommend that the medical examiners shall be skilled in medico-legal science and selected with regard to their professional fitness and without reference to political considerations; (4) That they recommend that line 20, section 1779, of the proposed bill be amended by changing the words "Police Justice" to the words "Justice of the Supreme Court," as the office of Coroner in their judgment under the law should rank with that of a Justice of the Supreme Court.

MEDICAL EXAMINATION BY PROXY.—During the past week the examination was held by the Board of Regents of the University of the State of New York of such first-year students of medicine as had not been graduated from a registered college or satisfactorily completed not less than a three years' academic course in a registered academy or high school. This is in accordance with the new law regarding the conferring of the degree of bachelor or doctor of medicine, and the studies comprised in the examination are: arithmetic, elementary English, geography, spelling, United States history, English composition, and physics. On March 13th it was discovered that two of the applicants had appeared under assumed names; one representing a student of Bellevue Hospital Medical College and the other a student of the College of Physicians and Surgeons. It is said that those concerned in the fraud will be black-listed in all the medical colleges of the State and that they may perhaps be criminally prosecuted by the Medical Society of the County of New York.

A TETANUS ANTITOXIN.—At a meeting of the Medico-Legal Society held March 13th, Dr. Paul Gibier, of the New York Pasteur Institute, read a paper in which he claimed to have discovered an antitoxin, prepared from the cultivation of the bacilli of this disease, which had proved successful in both the cure and prevention of traumatic tetanus. He exhibited specimens of the bacilli of tetanus under the microscope, and expressed the opinion that these germs were indigenous in all parts of the world inhabited by man or beast. The horse, he stated, more than any other animal, even man, was susceptible to this disease, and this could readily be accounted for from the fact that the filth of the stable offered the most favorable conditions for the development and multiplication of the tetanus bacilli.

PROGRESS OF THE TENEMENT-HOUSE COMMISSION'S BILLS.—It is gratifying to learn that one of the bills drawn up by the Tenement-House Commission appointed by Governor Flower has been passed by the legislature, and that the others, after some amendments by the committees to which they were referred, have been favorably reported in both branches of that body. The one already passed provides for the payment of the remaining moneys due on the three small parks in the tenement-house districts recently set apart under the Small Parks Act of 1887. Among the other bills is one providing for playgrounds about the public-school buildings. Another is for the better protection of tenement houses against fire, and the enforcement of stricter measures for the protection of their inmates from disease. A fourth bill provides for additional small parks during the next three years in the most crowded parts of the city.

## Miscellany.

### DOGS, WOMEN, MEN, HUMANITY.

PROF. W. W. KEEN, of Philadelphia, recently wanted a dog, from which to exsect a nerve for the purpose of grafting it into a gap in the sciatic of a patient, in the Jefferson College Hospital. He sent to the city pound for a dog for this purpose, but his request was refused by Mrs. Caroline Earle White, the president of the woman's branch of the S. P. C. A., which society it appears, has charge of the pound. The operation had to be postponed. A correspondence followed between Mrs. White and Dr. Keen, which is published in full in the Philadelphia *Record* of March 14th. We cannot forbear giving a short extract from one of Mrs. White's letters, and the whole of Professor Keen's reply.

Mrs. White to Professor Keen:

"In answer to your note I will say that although I should always approve of sacrificing a dog's life in order to save that of a man, unless the latter was a curse to the world and the former a boon and a blessing (which is sometimes the case), I think that I am justified in refusing to give you one of the dogs at our pound for an experiment which may prove of benefit to one of your patients, or may not, the latter being the most likely alternative."

Professor Keen to Mrs. White:

"Aside from myself there are three parties who are to be considered in this matter. First, the dog; second, the man, and third, mankind.

"First, the dog; I stated to you that the dog would not suffer; that he would be treated with the same care as the man, and that after the operation I should continue the anesthetic until the dog was dead. Yet you refuse me the dog because, forsooth, somebody else may be cruel to some other dog.

"Secondly, the man. This man knows what I am going to do, and is anxious to have it done. His leg is paralyzed. If by an ordinary surgical procedure I can re-establish the continuity of the nerve, I may be able to cure his paralysis. In that case I should not have recourse to the dog.

If, on the contrary, the gap between the two ends of the nerve is so great that I cannot bring them together, either the man must be condemned to paralysis for life or some other means must be tried to re-establish the nerve and so restore to him a useful leg. This might be done by the process of nerve grafting.

"Yet you refuse me a dog on the ground that it is an 'experiment.' Granting that it is, it is at the most, a perfectly harmless experiment, for it would not be more painful than any ordinary operation; and even if it absolutely fails, it leaves the patient not a whit the worse off. If it succeeds, it will be the greatest possible service to him.

"Thirdly, mankind. The only way in which surgery can make any progress is by testing new methods of treatment which have at least a reasonable possibility of success. Just such persistence and continued trials have encircled the globe with ocean cables. But you assume the rôle of a judge, who decides that such a new method of treatment shall not be tested. You, who I presume would admit that you know nothing of surgery, put your judgment against that of one who has spent thirty-five years in the earnest study, active practice and continuous teaching of surgery. You will excuse me if I think you are not a competent judge.

"If you had your way there would be no Pasteur Institutes in any part of the world to save so many lives from hydrophobia; there would be no antitoxin treatment of diphtheria, which already has borne such wonderful results; there would be no inoculation against cholera, which in the hands of Haffkine bids fair to rescue thousands of lives; there would be no cerebral surgery, since you would not allow us to investigate the functions of the brain; there would be little or no antiseptic surgery, the greatest stride forward of this century.

"In your misguided zeal for dogs you are guilty, in my opinion, of cruelty to this man, and cruelty to all mankind, because you thwart scientific progress under the guise of love for animals. You would condemn to the torture and disabilities of accident and disease, people who have happily been rescued by the more humane scientists in my profession.

"You will pardon me if I write earnestly. It is because I feel deeply the injury you are trying to inflict upon the human race. Happily, the common sense of the community does not allow you to have your way, as they prefer the devotion of my own profession to the welfare of mankind, to your devotion to dogs in preference to men."

## THE TRIUMPH OF M. PÉAN.

The session of the Académie de Médecine of Paris held January 15th, was made remarkable by the presentation of a patient by M. Péan.

This patient had had a carcinoma of the larynx, and to relieve it, it was necessary for M. Péan to make entire extirpation of the larynx, the superior portion of the esophagus and the inferior portion of the pharynx. Not only did the patient support the mutilation, but by means of a prothetic apparatus constructed by M. Michalës, under the direction of M. Péan, the organs were replaced so that the patient could breathe, eat and drink. Not only that, but the apparatus allowed the patient to make articulate sounds, so that speech could be understood. It is two years since the patient was operated upon, and the crowning glory of the operation has been the phenomenal, nay, the brilliant success of the artificial larynx. In former times the saving of the life of a patient so afflicted would in itself have been a triumph of surgery, but to replace lost parts with apparatus of such delicacy and usefulness seems to represent an art almost superhuman.—*Journal of the American Medical Association.*

## ACTINOMYCOSIS IN FRANCE.

Poncet, at the meeting of the French Academy of Medicine, of January 22d, reported that he had seen at Lyons during the past year six cases of actinomycosis: one involving the lungs; one the upper jaw, with extension to the base of the skull (ending in meningitis); one the larynx, attended by deep cervical lymphangitis; the three others presenting the common form, actinomycosis of the face and jaw. The first two cases had a fatal termination, and in the third the same result was expected.

Poncet thinks that, considering the fact that without taking special pains to that end, he had seen six cases within so short a time, actinomycosis is common in France as in other countries, Brandenburg and Austria excepted. Although up to the present time only twenty-two cases have been reported in France, he thinks that errors in diagnosis have in all probability resulted in many patients who were in reality suffering from this disease being treated for syphilis. The efficacy of iodide of potassium in the treatment of actinomycosis probably renders this mistake a frequent one. In many acute cases in which there is lymphangitis about the lower jaw, the disease is regarded as resulting from the development of a wisdom tooth; in other more chronic cases, a carcinoma of the tongue, the jaw, or the floor of the mouth is simulated. Microscopic examination and culture of the fungus can alone establish the diagnosis; if careful examinations were made in all suppurative processes, reported cases of actinomycosis would markedly increase in number.

## THERAPEUTIC NOTES.

Disinfection of Catheters. — Dr. John Ward Cousins, in the *British Medical Journal*, January 19, 1895, recommends a steam apparatus for the disinfection of metallic and other catheters. It is well known that boiling is not a good way to cleanse soft catheters, and that the insides of metallic catheters cannot be satisfactorily cleaned by the ordinary method. Dr. Cousins's apparatus consists of a boiler having a capacity of about three pints and capable of bearing a pressure of eighty pounds to the square inch. It can be heated by a spirit or gas jet in about fifteen minutes. The steam pipe is connected with a circular tube fitted with projecting terminals, and these are adapted to hold a complete set of catheters. An old-fashioned spray apparatus can have the circular tube attached to them if required. After the steaming a polishing stilette is introduced and the instrument carefully dried.

How to Compute the Dose for Children.[1] — Dr. P. Bolognini contends that the formulæ in general use for computing the doses of remedies suitable for different ages are unsatisfactory. He has computed the average weight of children for each month of the first year, and for each year thereafter up to the eighteenth, and upon this basis has formulated the following rules: (1) From birth to the end of the first year: let $d$ stand for dose and $m$ for the age of the infant in months. Then the fraction of the adult dose will be represented by $d = \frac{1}{20 - m}$. (2) For a child from two to eighteen years of age the formula is $d = \frac{2 + a}{25}$; $d$ = dose, and $a$ = age of the child in years.

[1] Archives of Pediatrics.

## METEOROLOGICAL RECORD,

For the week ending March 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | Direction of wind. | | Velocity of wind. | | We'th'r. * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S .. 3 | 29.85 | 30 | 35 | 25 | 68 | 72 | 70 | N.W. | S.W. | 10 | 12 | O. | C. | |
| M.. 4 | 29.89 | 31 | 37 | 25 | 61 | 98 | 80 | N. | N.W. | 10 | 7 | O. | O. | |
| T .. 5 | 30.11 | 22 | 29 | 16 | 43 | 59 | 51 | W. | W. | 20 | 12 | C. | C. | .07 |
| W.. 6 | 30.44 | 27 | 36 | 18 | 54 | 100 | 77 | W. | S.E. | 7 | 8 | C. | N. | .03 |
| T .. 7 | 30 16 | 34 | 38 | 29 | 80 | 100 | 90 | N. | N. | 5 | 8 | F. | R. | .17 |
| F .. 8 | 29.88 | 39 | 44 | 34 | 93 | 96 | 94 | N.W. | E. | 7 | 7 | R. | O. | .56 |
| S ... 9 | 29.56 | 41 | 48 | 34 | 95 | 55 | 75 | N.E. | W. | 7 | 16 | G. | C. | .01 |
| ☞ | | | | | | | | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 9, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung disease. | Diarrheal Diseases. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,956,000 | 864 | 332 | 11.64 | 23.76 | 1.32 | 4.68 | 1.80 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | — | — | — | — | — | — | — |
| Brooklyn | 1,043,000 | 418 | 153 | 15.12 | 24.00 | .96 | 9.60 | 1 44 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 235 | 71 | 6.45 | 21.50 | .86 | 3.01 | 1.29 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 265,000 | 126 | 33 | 3.16 | 20.54 | .79 | .79 | — |
| Cincinnati | 325,000 | 123 | 29 | 3.24 | 27.54 | 1.62 | .81 | — |
| Cleveland | 325,000 | 109 | 37 | 6.44 | 18.40 | — | .92 | 2.76 |
| Pittsburg | 272,000 | 102 | 38 | 6.86 | 27.44 | — | 2.94 | 3.92 |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,784 | 36 | 7 | 5.56 | 19.46 | — | 2.94 | 2.94 |
| Charleston | 65,165 | 36 | 12 | 2.78 | 16.68 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 34 | 7 | 5.88 | 26.46 | — | 2.94 | — |
| Fall River | 92,233 | 49 | 25 | 8.16 | 40.80 | 4.16 | 2.04 | 2.04 |
| Lowell | 90,613 | 29 | 8 | 7.14 | 28.56 | — | 3.57 | — |
| Cambridge | 79,607 | 34 | 7 | 2.94 | 14.70 | — | — | — |
| Lynn | 65,123 | 28 | 5 | 7.14 | 17.85 | — | 3.57 | — |
| Springfield | 50,384 | 27 | 6 | 11.11 | 37.00 | — | — | 3.70 |
| Lawrence | 49,966 | 20 | 7 | 10.0 | 35.00 | — | — | — |
| New Bedford | 47,141 | 24 | 7 | 8.32 | 20.80 | 4.16 | 4.16 | — |
| Holyoke | 45,348 | 14 | 4 | 35.70 | 21.42 | 14.28 | — | — |
| Brockton | 33,939 | 17 | 6 | 5.88 | 23.52 | — | — | 5.88 |
| Salem | 33,155 | 15 | 1 | — | 33.33 | — | — | — |
| Haverhill | 32,925 | 4 | 2 | — | — | — | — | — |
| Malden | 30,209 | 12 | 2 | — | — | — | — | — |
| Chelsea | 29,806 | 11 | 2 | 9.09 | — | — | — | 9.09 |
| Fitchburg | 29,383 | 7 | 4 | — | — | — | — | — |
| Newton | 28,837 | 17 | 1 | — | 35.28 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 18 | — | — | — | — | — | — |
| Waltham | 22,058 | 7 | 3 | — | 42.84 | — | — | — |
| Quincy | 19,642 | 8 | 5 | — | 25.00 | — | — | — |
| Pittsfield | 18,802 | 4 | 1 | — | 75.00 | — | — | — |
| Everett | 16,585 | — | — | — | — | — | — | — |
| Northam | 16,331 | 5 | 2 | — | 20.00 | — | — | — |
| Newburyport | 14,073 | 6 | 1 | — | 30.00 | — | — | — |
| Amesbury | 10,920 | — | — | — | — | — | — | — |

Deaths reported 2,556: under five years of age 852; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 234, acute lung diseases 596, consumption 308, diphtheria and croup 100, scarlet fever 37, diarrheal diseases 26, measles 20, typhoid fever 18, whooping-cough 14, cerebro-spinal meningitis 11, erysipelas 8.

From measles New York 13, Brooklyn 3, Providence 2, Boston and Springfield 1 each. From typhoid fever Cleveland and Pittsburg 3 each, New York 2, Boston, Washington, Cincinnati, Charleston, Worcester, Lowell, Cambridge, Springfield and Clinton 1 each. From whooping-cough Brooklyn 7, New York 6, Boston 1. From cerebro-spinal meningitis New York 5, Holyoke 3, Lawrence 2, Lynn 1. From erysipelas New York 5, Brooklyn 2, Providence 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending March 2d, the death-rate was 32.9. Deaths reported 6,683: acute diseases of the respiratory organs (London) 1,449, whooping-cough 113, measles 61, diphtheria 47, diarrhea 36, fever 35, scarlet fever 30, small-pox (London and Liverpool 1 each) 2.

The death-rates ranged from 15.1 in Derby to 55.5 in Liverpool; Birkenhead 27.7, Birmingham 23.1, Bradford 25.3, Brighton 32.3, Cardiff 34.5, Halifax 43.4, Leeds 23.7, Leicester 19.1, London 38.5, Manchester 28.7, Nottingham 49.2, Plymouth 39.2, Preston 36.1, Salford 30.5, Swansea 28.5, West Ham 28.6.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 8, 1895, TO MARCH 15, 1895.

Leave of absence for one month, to take effect about March 10, 1895, is granted MAJOR CHARLES L. HEIZMAN, surgeon, U. S. A., Fort Douglas, Utah.

The leave of absence for seven days granted CAPTAIN PAUL CLENDENIN, assistant surgeon, is extended twenty-one days.

The attending surgeon at Boston, Mass, will attend the sick at Fort Warren, Mass., during the absence of CAPTAIN CLENDENIN.

FIRST-LIEUT. GEORGE D. DESHON, assistant surgeon, is relieved from duty at Fort Logan, Colorado, and ordered to duty at Fort Douglas, Utah.

CAPTAIN FREEMAN V. WALKER, assistant surgeon, is granted leave of absence for one month, to take effect upon his relief from duty at Fort Trumbull, Conn.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 16, 1895.

L. L. YOUNG, assistant surgeon, detached from the Naval Hospital, Norfolk, Va., and wait orders.

AMMEN FARENHOLT, assistant surgeon, ordered to the U. S. S. "Baltimore."

## OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING MARCH 15, 1895.

GODFREY, JOHN, surgeon. Detailed as chairman board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

IRWIN, FAIRFAX, surgeon. To inspect Cape Charles Quarantine Station. March 9, 1895.

MEAD, F. W., surgeon. Detailed as chairman board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

GLENNAN, A. H., passed assistant surgeon. To report at Bureau for temporary duty. March 12, 1895.

GARDNER, C. H., assistant surgeon. To proceed to Angel Island Quarantine Station for temporary duty. March 4, 1895. Detailed as recorder for board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

STEWART, W. J. S., assistant surgeon. Detailed as recorder board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

OAKLEY, J. H., assistant surgeon. Detailed for duty on Revenue Steamer "Rush." March 13, 1895.

CUMMING, H. S., assistant surgeon. To proceed to Boston, Mass., for temporary duty. March 6, 1895.

## SOCIETY NOTICE.

NORFOLK DISTRICT MEDICAL SOCIETY.—The Fellows of the Norfolk District Medical Society resident in Dorchester and vicinity, will entertain the Society at the Old Dorchester Club House, on Tuesday, March 26, 1895, at 7.45 P. M.

Communication: "The Relation of the Massachusetts Medical Society to the Medical Profession in Massachusetts," W. S. Everett, M.D.

It is expected that some of the officers of the Massachusetts Medical Society will be present and take part in the discussion.

Collation at 9.30 P. M.

The Club House is located on Pleasant Street near Stoughton Street. The Field's Corner or Ashmont cars pass the door.

J. C. D. PIGEON, M.D., *Secretary.*

## BOOKS AND PAMPHLETS RECEIVED.

A Practical Theory and Treatment of Pulmonary Tuberculosis. By Frank S. Parsons, M.D., Philadelphia.

A Review of Six Interesting Pathologic Cases. By E. R. Axtell, M.D., of Denver, Col. Reprint. 1895.

# Original Articles.

## A REPORT ON THE BACTERIOLOGICAL INVESTIGATIONS OF AUTOPSIES.[1]

BY J. H. WRIGHT, M.D.,
*Assistant in Pathology, Harvard Medical School;*
AND WM. R. STOKES, M.D.,
*Resident Assistant Pathologist, Boston City Hospital.*

(Continued from No. 12, p. 275.)

### ACUTE ENDOCARDITIS.

The evidence in favor of the bacterial origin of acute endocarditis is both experimental and pathological.

The possibility of inducing an experimental acute endocarditis, due to bacteria, was first suggested by Rosenbach, in 1878, who showed that by injuring the heart-valves of an animal by means of a sound passed into the carotid, in certain cases vegetations were produced on the valve in which micro-organisms could be demonstrated. These micro-organisms were carried into the circulation accidentally by the operation, and Rosenbach considered that a certain proportion of the heart-lesions resulting were due to their presence and was independent of the mechanical injury produced by the sound. These experiments of Rosenbach opened the way for the later work of Wyssokowitsch and Orth in 1885, who proved that by the injection of the pyogenes cocci into the circulation of animals, after previous mechanical injury to the valves of the heart by Rosenbach's method, a true acute endocarditis could be induced. These investigators maintained that the previous lesion of the valves was necessary, for the mere injection of the pyogenic cocci into the circulation was not followed by the appearance of valvular vegetations, nor did such vegetations appear after the mechanical injury of the valves, if no bacteria were introduced into the blood. The experimental production of acute endocarditis has also been studied by Netter, Ribbert, Fränkel and Sänger, Prudden, Weichselbaum, Stern and Hirschler, and Viti. The combined results of the work of these writers has shown that true endocarditis can readily be produced in animals by the intravenous injection of any of a number of species of bacteria, provided that there is some previous lesion of the heart-valves, although the necessity of this previous lesion is denied by Netter and Ribbert.

The pathological evidence of the infectious nature of acute endocarditis is also convincing. In 1885 Wyssokowitsch reported finding the staphylococcus pyogenes aureus in a case of ulcerative endocarditis, but failed to find any bacteria in 11 cases of the verrucose form. In the same year Weichselbaum published the results of his study of one case of the verrucose form and three cases of the ulcerative form, in all of which he found either the staphylococcus pyogenes aureus or the streptococcus, or both. The first extensive study, however, of the etiology of acute endocarditis in man, is that of Fränkel and Sänger, published in 1886. These investigators studied 11 cases of the verrucose form and one case of the ulcerative form, and found in nine cases bacteria in the cardiac lesions, the staphylococcus pyogenes aureus being present in six. This publication was important because it was a strong confirmation of the view, which is now generally held, that all forms of acute endocarditis are to be regarded as of infectious origin. An important work also is that of Netter, who observed the micrococcus lanceolatus in seven or nine cases of acute endocarditis associated with acute lobar pneumonia.

Weichselbaum has, however, contributed more to our knowledge of this disease than any other single investigator. From a study of 15 cases of ulcerative endocarditis, 13 cases of verrucose endocarditis and one case of endocarditis of the left auricle, Weichselbaum concluded that there is no essential difference between the various forms of endocarditis, either histologically or bacteriologically; that no one species of bacteria are concerned in the production of the disease; that in cases in which no bacteria are found, the bacteria have died or there is some defect in the method of examination for their presence; and that chronic endocarditis is the result of the acute form of the disease. Of the 29 cases of Weichselbaum, the micrococcus lanceolatus was found in seven (six of the ulcerative form and one of the verrucose form); the streptococcus in six (four ulcerative and two verrucose); the staphylococcus pyogenes aureus in two (verrucose); and in six cases various unusual bacteria. In eight cases the examination for the presence of bacteria was negative.

Other observations of bacteria in acute endocarditis are those of Banti (20 cases), Viti (eight cases), Girode (six cases), Senger, Lanceraux, Stern and Hirschler, Meyer, Vinay, Steinberg, Malvolz, Tombolan[2] and Fava, Perret and Rodet, Gilbert and Lion, Paulus, Lanceraux and Besançon, Oulmont and Barbier, Lafitte, Josser and Roux, Barbacci, Glusincki, Leyden, Howard and Councilman. The cases studied by these writers prove conclusively that a great variety of bacteria are to be found associated with the acute forms of the disease, in which not only the ordinary pyogenic cocci, the micrococcus lanceolatus and other less known species may be present, but also the gonococcus, (Councilman and others) and the bacillus diphtheriæ (Howard) as well.

In 10 cases of acute endocarditis examinations of the valvular vegetations or ulcerating tissue of the heart have been made; and in seven of the 10 cases the micrococcus lanceolatus has been found, in one case accompanied by the bacillus diphtheriæ. Of the three remaining cases in which the micrococcus lanceolatus was not found, the staphylococcus pyogenes aureus was present in one, the streptococcus and the staphylococcus pyogenes aureus in the second, and unknown bacteria in the third case. In all, 19 cases of acute endocarditis, six or seven of which were of the ulcerative form, have been studied with reference to the occurrence of bacteria in the internal organs. The micrococcus lanceolatus has been found in the heart-blood or in some or all of the parenchymatous viscera in seven cases. Combining the results of these cultures with the results of the examination of the heart-lesions, mentioned above, it may be said that evidence of the association of the micrococcus lanceolatus with acute endocarditis has been obtained in nine out of the 19 cases. Of the remaining cases, in two there was a well-marked general infection with the staphylococcus pyogenes aureus; in two others, both in puerperal females, a general infection with the streptococcus; and in six no definite conclusion was to be drawn from the results of the cultures. The staphylococcus pyogenes aureus was also present with the

[1] This paper will appear in the Boston City Hospital Reports, Sixth Series.

streptococcus in the blood of the liver as well as in the valvular vegetation in one of these puerpural cases. It is worthy of note that in a third puerperal case, with acute endocarditis, the micrococcus lanceolatus was found in the blood of the heart and in the embolic pneumonia, while the streptococcus was found in the uterus and kidney.

### GENERAL INFECTIONS WITH THE MICROCOCCUS LANCEOLATUS.

In addition to the foregoing cases of general infection with the micrococcus lanceolatus in acute lobar pneumonia and acute endocarditis, a number of other cases have been met with in which this organism has been found in some or all of the large viscera. These cases are essentially as follows:

CASE I. Acute fibrinous pericarditis with effusion. Acute fibrinous pleuritis, acute splenic tumor. Acute degeneration of liver and kidneys. Micrococcus lanceolatus in pericardium, lung, liver and kidney. Spleen sterile.

CASE II. Ulcus ventriculi; abscess of adjacent fat tissue with perforation into peritoneal cavity. Fibrinous peritonitis and pleuritis. Micrococcus lanceolatus in fibrinous exudate on peritoneum and pleura, in spleen, kidney and wall of heart. Bacillus coli communis in liver and in some of the other organs also.

CASE III. Hysterectomy. Occlusion of ureters by ligature, leakage of urine into peritoneal cavity, congestion of lungs, acute splenic tumor. Micrococcus lanceolatus in peritoneum and spleen. Blood of heart negative. Various bacteria were also present in peritoneum.

CASE IV. Acute adenitis of inguinal and peritoneal lymph-glands, acute splenic tumor, edema and congestion of lungs. No infection-atrium demonstrated. Micrococcus lanceolatus in inguinal lymph-gland, kidney and liver. Spleen and femoral lymph-gland sterile. Bacillus coli communis in liver.

CASE V. Fracture of base of skull, extending through the petrous portion of the left temporal bone. Acute purulent otitis media (left), purulent leptomeningitis, thrombosis of left lateral sinus, acute splenic tumor, acute degeneration of liver and kidneys. The otitis was apparently subsequent to the fracture. Micrococcus lanceolatus in pus of internal ear and of meninges, blood of heart, liver, spleen, kidney and lung. Staphylococcus pyogenes aureus also in lung. As elsewhere pointed out, the infection-atrium in this case was most probably the internal ear.

CASE VI. Subacute diffuse nephritis (large white kidney), anasarca, ascites, hydrothorax, subacute peritonitis. Micrococcus lanceolatus in peritoneal exudate, spleen, kidney, liver and blood of heart.

CASE VII. Disseminated general sarcomatosis. Broncho-pneumonia. Micrococcus lanceolatus in broncho-pneumonia, liver, kidney, and blood of heart. Staphylococcus pyogenes aureus also in kidney. Spleen sterile.

CASE VIII. Child, aged two and one half days. Acute pneumonia of both lungs. Hemorrhages beneath dura and peritoneum. Micrococcus lanceolatus by cover-slips (direct examination) in lung, liver, spleen, kidney and blood of heart. There was no evidence of infection from mother.

Additional cases of general infection with the micrococcus lanceolatus are considered under puerperal infection, diphtheria and scarlet fever.

### MISCELLANEOUS GENERAL INFECTIONS WITH THE STREPTOCOCCUS.

In this group we have collected a variety of cases in which the bacteriological examination showed more or less of a general invasion of the viscera by the streptococcus. Some of these cases have been of a surgical character, but a number of others have been cases in which there was little or no reason for suspecting any pyogenic infection, either clinically or at the autopsy. With the exception of a single case, none of the cases with general infection with the streptococcus in diphtheria and scarlet fever are included in this group, but are considered elsewhere in connection with these diseases. The exceptional case was one of diphtheria and scarlet fever in which the streptococcus septicemia was apparently of surgical origin, and on that account it is included here.

CASE I. General arterio-sclerosis, hypertrophy and dilatation of the heart, thrombosis of right auricular appendix, multiple emboli of lungs with infarction, arterio-sclerotic kidney and liver, edema, ascites and hydrothorax. Streptococcus in liver, kidney, spleen, infarction of lung and blood of heart.

CASE II. Disseminated tuberculosis of lungs. Tuberculosis of epididymus, seminal vesicles and kidney, acute splenic tumor. Streptococcus in spleen and lungs; in lung, also, bacillus diphtheriæ and staphylococcus pyogenes aureus. Kidney and liver sterile.

CASE III. General hematogenous miliary tuberculosis. Primary tubercular ulcer of intestine, tuberculosis of mesenteric glands and thoracic duct. Streptococcus in spleen, liver, kidney, lung, blood of heart and in superficial vein.

CASE IV. Cancer of rectum. Streptococcus in kidney, lung and blood of heart.

CASE V. Subcutaneous injections of bouillon cultures of the streptococcus derived from erysipelas, in a case of sarcoma of the thigh. Death after about ten days. At the autopsy there was found edema and congestion of the lungs, hemorrhages in parietal and visceral pleuræ, enlargement and congestion of the inguinal glands on the side of the tumor, and of the posterior mesenteric and gastro-hepatic lymph-glands. Streptococcus in tumor, inguinal gland, spleen, liver and blood of heart. Bacillus pyocyaneus in tumor.

CASE VI. Broncho-pneumonia, purulent bronchitis, mucopurulent cystitis. Streptococcus in spleen, liver, kidney and blood of heart.

CASE VII. Operation for congenital hernia, followed by abscess formation. Diphtheria. This case is included among the diphtheria cases. Streptococcus in liver, spleen, lung and kidney. Bacillus diphtheriæ in throat, lung and spleen. It seems probable that in this case the infection-atrium for the streptococcus was the operation wound.

CASE VIII. Empyema, thoracentesis, croupous pneumonia, acute splenic tumor, fatty degeneration of liver, chronic diffuse nephritis. Larynx and trachea not examined. No suspicion of diphtheria. Streptococcus in kidney, spleen, liver, lung and blood of heart. Bacillus diphtheriæ and staphylococcus pyogenes aureus also in lung.

CASE IX. Operation for tuberculosis of hip-joint. Acute peri- and endocarditis. Chronic endocarditis with general chronic passive congestion. Steptococcus in operation wound, liver, spleen, kidney and heart-

muscle. Staphylococcus pyogenes aureus also in the operation wound.

CASE X. Ulcers and cellulitis of leg, purulent arthritis of knee. Broncho-pneumonia. Fatty degeneration of liver. Acute splenic tumor. Acute degeneration of kidney. Diphtheritic ulceration of large intestine. Streptococcus in knee-joint, kidney, spleen, blood of heart, broncho-pneumonia, and possibly in liver. It is possible that there was a general poly-infection to a certain extent with the streptococcus and the micrococcus lanceolatus, but this was not determined accurately.

CASE XI. Operation wound, removal of vermiform appendix, acute purulent peritonitis, broncho-pneumonia, acute parenchymatous degeneration of liver and kidneys. Streptococcus in peritoneal pus, liver and kidney.

### PUERPERAL INFECTION.

The present state of our knowledge on the subject of puerperal infection has been recently reviewed by Williams, who concludes "that various, very diverse micro-organisms, especially the streptococcus and the staphylococcus," may be concerned in this condition, but "that most of the fatal cases of puerperal disease have been due to infection with the streptococcus." Among the first observations of the occurrence of the streptococcus in puerperal infection was that of Orth, in 1873, who described and figured a spherical organism, growing in chains in the purulent exudation of puerperal peritonitis. The first to cultivate this organism from autopsies on puerperal cases was Pasteur, in 1880, and since that time its frequent occurrence in puerperal infection has been demonstrated by Winkel, Pfannenstiel, Czerniewski, and others.

In this group of cases we have included all those cases of infection which seemed to have been of puerperal origin. It will be noted that some of them are well-marked poly-infections.

CASE I. Typical diphtheritic endometritis and vaginitis, abscesses in lungs, acute fibrinous pleuritis, acute splenic tumor. Streptococcus in pus of uterine lymphatics, blood of heart and spleen. Streptococcus, staphylococcus pyogenes aureus and micrococcus lanceolatus in lung (abscesses).

CASE II. Diphtheritic endometritis and vaginitis, abscesses in lung, acute pleuritis and parotiditis, acute splenic tumor. Criminal abortion at third month. Staphylococcus pyogenes aureus in parotid gland, blood of heart and lung; in the lung, also streptococcus. Liver and spleen sterile. Various unknown bacteria in uterus.

CASE III. Fever after childbirth, with intense jaundice. Acute nephritis. Streptococcus in liver, spleen, kidney and blood of heart.

CASE IV. Abortion and septic endometritis. Streptococcus in uterus, pus of Fallopian tube, and in spleen. Liver and kidney negative.

CASE V. Puerperal fever. Streptococcus in uterus, thrombosed uterine vein and kidney. Other organs not examined.

CASE VI. Acute puerperal diphtheritic vaginitis, thrombosis of vaginal veins and uterine lymph-vessels, purulent peritonitis, acute pleuritis, congestion and edema of lungs, acute parenchymatous degeneration of liver and kidney. Congenital defect in intra-ventricular septum, patency of foramen ovale, hypoplasia of aorta; chronic passive congestion of lungs. Streptococcus in abdominal pus, pleural exudate and blood of heart. Staphylococcus pyogenes aureus in spleen. Bacillus coli communis in uterine lymph-sinus, vaginal veins, kidney and in some other situations.

CASE VII. Hemorrhagic pericarditis, uterine hemorrhage, abortion in progress. Bacillus coli communis in body of uterus, kidney, blood of heart and spleen. Liver sterile. Pericardium negative.

CASE VIII. Puerperal septicemia, partially retained placenta, acute splenic tumor, acute parenchymatous degeneration of liver and kidneys. Streptococcus in kidney. Bacillus coli communis in uterus, liver, spleen, kidney and blood of heart.

CASE IX. Croupous pneumonia following childbirth. Streptococcus in uterus and kidney. Micrococcus lanceolatus in lung and pleural exduate. Bacillus coli communis in all organs.

CASE X. Hypertrophy of uterus after early abortion. Endometritis, acute endocarditis, hemorrhagic infarction of lungs with embolic pneumonia, acute splenic tumor. Micrococcus lanceolatus in blood of heart and lung. Streptococcus in uterus and kidney. Bacillus coli communis in liver and in other organs.

CASE XI. Acute endometritis. Post-partum hypertrophy of uterus, acute endocarditis, septic infarction of spleen and kidneys, embolism of branches of superior mesenteric artery, subacute nephritis, slight chronic passive congestion of lung, liver and spleen. Streptococcus in endometrium, liver, kidney, spleen infarction. Streptococcus and staphylococcus pyogenes aureus in heart-lesion and blood of liver vein. Spleen sterile.

CASE XII. Clinical diagnosis: puerperal eclampsia. Post-partum hypertrophy of uterus, laceration of cervix with hemorrhage into ligamentum latum. Hydrothorax, hydro-pericardium, edema of lungs, acute splenic tumor. Micrococcus lanceolatus in endometrium, liver, lung, spleen and kidney.

The streptococcus has been found in one or more of the internal organs in nine of these twelve cases. This result is in harmony with the generally accepted view that this organism is by far the most common cause of puerperal infection.

### ERYSIPELAS.

CASE I. Erysipelas of face, pulmonary apoplexy, acute splenic tumor. Old tuberculosis of apices of lungs, scattered foci of tuberculosis in the upper lobe of right lung, acute tubercular pleuritis left side. Streptococcus in tissue of face. Staphylococcus pyogenes aureus also in tissue of face and in spleen, kidney and lung and blood of heart. Liver negative.

CASE II. Erysipelas of face and neck. Acute nephritis. Cultures failed to demonstrate any specific infection.

CASE III. Erysipelas of face and scalp, congestion of lungs, acute splenic tumor. Steptococcus and other organisms in scalp. Liver and spleen sterile. Various bacteria in blood of heart and lateral sinus. Staphylococcus pyogenes aureus in lung.

CASE IV. Erysipelas of face and scalp. Diffuse visceral syphilis. Streptococcus in blood of heart, spleen and lung. Bacillus coli communis in kidney.

CASE V. Erysipelas of face. Contusion of forehead and buttock. Fatty degeneration and purulent infiltration of muscles of buttock. Streptococcus in muscles of buttock, spleen, kidney, liver, lung and blood of heart.

CASE VI. Erysipelas of leg; small ulcer on pos-

terior surface of leg. Inguinal glands on affected side enlarged and reddened, and in the adjacent tissue small purulent foci. Hypostatic congestion of lungs, acute splenic tumor. Streptococcus in the deep subcutaneous tissue of leg and inguinal gland. Micrococcus lanceolatus in lung. Bacillus coli communis in kidney and blood of heart.

CASE VII. Erysipelas of leg. Broncho-pneumonia. Tissues of leg and inguinal gland sterile. Streptococcus in liver. Staphylococcus pyogenes aureus in lung, kidney and spleen. Blood of heart sterile.

It will be seen that the streptococcus has been found associated with six of these cases, while in two there was a general infection with the staphylococcus pyogenes aureus in addition. We consider the general infection with the latter organism as a secondary one, following on the erysipelas, which was induced by the streptococcus. The failure to demonstrate the streptococcus in the local lesion in one of the cases in which that was examined, is not surprising, as it is well known that it does not long survive in the tissue after it has produced its effects.

We have examined four cases of extensive superficial burns which we will consider in one group. The bacteriological results are as follows:

CASE I. Streptococcus in spleen, kidney and blood of heart. Liver and mesenteric gland sterile.

CASE II. Streptococcus in suppurating tracheal gland, liver, spleen and kidney.

CASE III. Bacillus coli communis in spleen, kidney and lung. Liver and blood of heart sterile.

CASE IV. Various unknown bacteria found in the various organs.

## A CASE OF ACTINOMYCOSIS.[1]

BY F. B. MALLORY, M.D.,
*Instructor in Pathology in Harvard Medical School.*

ACTINOMYCOSIS is a sufficiently rare disease in this part of the world to render a case coming to autopsy at the Boston City Hospital of enough importance to be reported. Unfortunately the nature of the disease was not recognized either clinically or at the post-mortem examination, so that many queries which were raised later could not be definitely settled owing to a lack of investigation at the proper time.

The patient, a native of Denmark, came from the West several months before his death. Further than that nothing is known of his previous history. He entered the Massachusetts General Hospital on the 2d of June, 1894. His temperature was then 99.1° F., his pulse 120 and his respiration 28. He complained of gradual failure of breath and of the development of a cough. About two weeks before entrance he had noticed a lump in his epigastrium.

"*Physical Examination.* — A weak, emaciated man with anxious expression. Heart-sounds heard loudly in chest, anemic murmur. Nothing found in lungs except dulness in upper left front. Liver dulness one-half inch below ribs. Skin on left epigastrium, over an area of several square inches, reddened and tense. Abdominal wall thickened all around and dull on percussion. Abscess opened and considerable foul material looking like broken-down tuberculous tissue escaped. Packed with iodoform gauze and poulticed. The wound was dressed daily, but remained thoroughly indolent, so that on June 14th the patient was etherized and the granulations curetted, the curette laying bare the cartilage of the left ribs and the abdominal fascia. No dead bone was found."

No further notes were made on the case, but the patient left the hospital soon after the first of July.

On the 23d of August he was admitted to the Boston City Hospital. He was then "dull in mind" and "talked very thick," so that his words could not be understood. No history concerning him could be obtained.

"*Physical Examination.* — Poorly nourished and emaciated. Heart-sounds weak and rapid. Apex in mammary line, one and three-fourths inches below nipple. Râles and bronchial breathing over the apices of both lungs, front and back. Percussion subtympanitic on the left side. About one and one-half inches below xiphoid and running parallel with the costal border, is a wound about two inches long, which discharges foul-smelling, purulent, whitish fluid. Between the tenth and eleventh ribs, about three inches to outer side of wound spoken of above, is a small round wound discharging a similar fluid. On the left forearm over the pronator muscles, on the left shoulder-cap over the deltoid, and on the dorsum of the right forearm above the wrist, are fluctuant tumors, each the size of an egg. Plaster swathes were applied to the abdominal wounds and bandages to the tumors on the arms."

During the following three days the patient remained dull, and failed in strength. The pulse became weak and more rapid, and death occurred on the fourth day after entrance.

The temperature of the patient on the day of admission was 102° F. On the next day it was 104°, falling to normal by evening. The following morning it was 96.2°, and remained subnormal until death. The pulse was 100 on entrance, and rose gradually to 120. The respirations fell from 42 to 30.

At the autopsy no connection was found between the sinuses in the epigastrium and the thoracic or peritoneal cavity. The organs only of the case were seen by the pathologist to the hospital. The following is his description of them:

"Both lungs firmly adherent to costal pleura by old adhesions. Left lung denser than normal; does not contract on removal from thorax; the density most marked in the upper lobe. In the apex a circumscribed cavity with smooth walls filled with caseo-purulent contents; elsewhere in upper lobe there is slaty-gray consolidation with caseation. There are also small foci of a reddish color, consolidated, from which pus can be squeezed. In the lower lobe there is much cicatricial tissue and areas of broncho-pneumonia. In the right lung there is perfect cicatrization of lower lobe with slight dilatation of bronchi. From this an abundance of pus can be squeezed, leaving very smooth cavities. In the upper lobe considerable edema and numerous reddish foci of purulent infiltration.

"In both of the lungs there is a great deal of cicatricial tissue. Large vessels and bronchi at base free.

"Liver of ordinary size and strongly adherent to diaphragm. In the left lobe of the liver the capsule is greatly thickened, cicatricial; and apparently the entire lobe is converted into a mass of necrotic tissue infiltrated with pus. The tissue, on section, of a whitish color (no trace of liver substance apparent), and intimately united with the thickened cicatricial capsule.

[1] Read before the Boston Society for Medical Improvement, December 17, 1894.

The right lobe of dark-red color, congested, free from abscess.

"Kidneys large, cortex hyperemic, markings normal. In both there are several circumscribed abscesses from size of a pea to a cherry. The abscesses contain pus of rather firm consistency, and a small amount of necrotic tissue. The pus is apparently infiltrated in the necrotic tissue. The pus from all these abscesses is thick and yellowish.

"In the right side of the brain, in the frontal region, at a point about corresponding to the middle of the first frontal convolution and extending down into the region of the second, there is a sharply circumscribed abscess filled with thick, greenish pus.

"Anatomical diagnosis. Tuberculosis, bronchopneumonia and secondary abscesses of lungs, with interstitial pneumonia. Perihepatitis and abscess of liver. Abscesses of kidneys, abscess of brain."

At both hospitals the case was regarded clinically as tubercular.

Cultures showed many colon bacilli in the heart's blood and in the abscesses in the lungs and liver. Many colonies of the staphylococcus pyogenes aureus were present in the cultures from the abscesses of the brain, lungs and over the deltoid. A few were found in the blood and in the abscess of the liver. A culture from an abscess of the kidney remained sterile. Cover-slip preparations from some of the abscesses were reported to contain cocci and delicate bacilli.

Fortunately the abscesses of the brain and kidneys with the surrounding tissue, and considerable portions of the lungs and liver were hardened in alcohol for microscopic purposes. Examination later showed the pathological processes to be due largely or entirely to actinomyces.

The first case of actinomycosis in man was observed by Langenbeck in 1845; but it was not until 1878 that the case, together with the original drawings, was published by J. Israel. There is also no doubt Lebert saw the organism in man in 1857 and pictured it accurately. It was not, however, until 1878 that J. Israel described a case of actinomycosis thoroughly, and showed the relation of the peculiar organism to the pathological lesions.

Actinomyces were discovered in the tongue of a cow by Hahn in 1870, and in 1877 Ballinger showed them to be present constantly in certain tumor-masses about the jaws and in the tongues of cattle. The organism was studied botanically by Harz and termed "actinomycosis bovis," or ray fungus. The identity of actinomyces in man and cattle was demonstrated by Ponfick in 1882. Since then the occurrence of the disease in man has been established by numerous observations all over the world.

In the lesions produced the actinomyces grow in characteristic colonies, which are often large enough to be recognized by the naked eye. They measure 0.18 mm. to 0.6 mm. in diameter. Occasionally they are conglomerate, and may measure as much as 2 mm., or even more, in diameter. To the naked eye the single colonies appear spherical, oval or slightly curved; the larger colonies are more irregular. According to Bostrœm, whose monograph on this subject has become a classic, the largest colonies are found where the tissue shows the greatest inflammatory reaction.

When the growth of the colonies is not interfered with, they develop, according to him, a certain typical structure which is shaped like a hollow ball with an opening at some point, out of which streams into the surrounding tissue a network of fibres which he calls the root. The mantle of the hollow ball consists of a basement layer composed of a very thick tangle of filaments which branch dichotomously, and of collections of small round bodies. The centre of the ball consists of a few branching irregularly-arranged threads. From the basement layer arise, first, small bush-like masses of threads but little branched; later, however, they are larger and the threads show numerous branches. On the outside lies the layer of the clubs.

The colonies are distinguished by color which depends on their age. The younger colonies appear gray and gelatinous like bits of mucus, and consist of only a loose tangle of branching filaments. In the next stage they are denser but still small and look grayish white or opaque white. The denser the network of threads, the whiter and more opaque the colonies become, until finally the color passes into yellow or even brown. The clubs have a metallic lustre which may become yellowish-green or bright green if they are large and numerous.

The examination of cover-slip preparations from actively growing colonies shows often a great variety of forms so that one is inclined to suspect a mixed infection due to several organisms. Side by side will be found coccus-like bodies, short and long bacilli, and single and branched threads, of which some stain uniformly while others consist of longer or shorter joints each of which corresponds to a coccus or to a bacillus. Besides these there are the transparent club-shaped bodies in which can be found bacilli and cocci similar to those in the threads.

All these different forms are now pretty generally looked upon as belonging to one and the same organism, which is classed among the polymorphous bacteria. On account of the branching, Bostrœm places it in the class Cladothrix.

The club-shaped formations have always excited the greatest interest and form one of the most characteristic features of this bacterium. According to Bostrœm whose views are now generally accepted, these clubs are due to a peculiar degeneration of the membrane or sheath of the organism. This degeneration may occur along the course of the filaments but is found especially at the ends. The filaments can often be traced directly into them. The swollen, degenerated sheaths get denser with age; they often crack and form curious, irregular and branching figures.

Cultures of actinomyces have been obtained by Bostrœm and by a number of other investigators. Inasmuch, however, as only those obtained by M. Wolff and J. Israel produced typical lesions when introduced into animals, it seems best to consider only their results in that direction. They succeeded in growing pure cultures from two separate cases in man, from a retro-maxillary tumor and from the lung. They found that the most important characteristics of the growth on agar were that the organism was anerobic (although not strictly so), that it showed a marked inclination to form small knots which rarely appeared before the third to the fifth day and that these knots had a tendency to remain separate even after months. The surface growth was remarkably dry, non-elevated, and sent roots into the culture medium beneath. The older colonies were not infrequently of a pale-yellow color. Microscopically the commonest form of the

growth on agar was found to be a short, straight or curved rod of which the length and breadth varied considerably. In some cultures very short thick rods were present; in others they were long, and thin or thick with often one end swollen. Occasionally threads were found which were usually wavy or spiral.

In the cultures in eggs, although rods were present, a tangle of threads was the commonest form. The filaments were straight, wavy or spiral and often dichotomously divided. The filaments on the periphery of the tangled masses showed a more or less radiating pattern. The single threads were not of the same thickness; some were slender, others thick. Many of the threads could be differentiated into rows of longer or shorter rods, or into round bodies like cocci. Wolff and Israel do not agree with Bostrœm in regarding the small round bodies which look like cocci as spores, for the reason that they stain readily by Gram, a property which other spores do not possess, and they suggest that these apparent cocci may be due to division of the short rods.

No club-shaped formations could be found in the cultures. The swollen ends of the rods often seen stained intensely with Gram, and could not therefore be due to degeneration of the sheath, for the degenerated bodies formed in this way stain only with diffuse stains.

Wolff and Israel introduced portions of their cultures into the peritoneal cavities of guinea-pigs and rabbits, and produced small tumors from the size of a millet-seed to a plum in which were found typical colonies of actinomyces with club-shaped bodies around the periphery. The larger tumors were nodular, of a pink color speckled with yellow, and showed on section a connective-tissue capsule from which extended many anastomosing septa between the soft, dough-like masses in which the colonies were situated.

There remains still to speak of the pathological lesion produced by actinomyces. This could best be studied by introducing pure cultures of the organism into animals and killing them after different periods of time. Then the direct effect of the polymorphous bacterium on the surrounding tissues could be accurately determined. This work, however, still remains to be done.

In cattle, according to Thoma, actinomyces, as a rule, give rise to circumscribed tumors in which the colonies are surrounded usually by a circular area of young, newly-formed connective tissue very rich in lymphoid and epithelioid cells. These areas, rich in cells, with the organism in the centre, are surrounded by more or less strong, at times very extensive bands of dense fibrillar scar tissue. These tumors may resemble sarcomas. In other cases the newly-formed tissue undergoes a mucous, pus-like softening. There arise then more or less richly branched canals or fistulæ filled with mucus and purulent fluids which may permeate the organs extensively. The walls of these fistulous canals are formed by the degenerating masses of the very cellular, newly-formed tissue. This latter form of the disease is much more common in man than is the formation of tumors.

The microscopic examination of the case cited at the beginning of this paper proved extremely interesting. The denser portions of the lungs and the whole of the abscess-like mass in the liver consisted of fibrous tissue riddled with pockets of various sizes, filled with pus in which were many colonies of actinomyces. The more normal portions of the lungs showed numerous areas of broncho-pneumonia caused by the actinomyces, colonies of which were often found in the bronchi and bronchioles. The epithelium was usually stripped from the walls, and the bronchus and adjoining alveoli were filled with polynuclear leucocytes. Often only the masses of cartilage could be found to mark the site of a bronchus.

In the abscesses in the brain and kidneys the disease showed a much more acute process than elsewhere. There was little formation of connective tissue beyond the young connective-tissue cells in the walls of the softened areas.

Through the kindness of Dr. A. K. Stone I was able to compare the character of the lesions produced in this case and the appearance of the colonies with those in a case of bovine actinomycosis. In the latter the softened areas were rather small and the production of young connective tissue abundant. The colonies were large, irregular and showed a great many clubs all around the periphery. Even in the very small colonies the swollen sheaths around the ends of the filaments could often be demonstrated. In the human actinomycosis the areas of softening were much larger, the zone of young connective tissue thin or even in places lacking, and large colonies rather the exception. On the other hand, the production of clubs was much less marked, while the filaments often radiated out in every direction from the colonies. These filaments were found everywhere between the leucocytes, and were characterized by their wavy, spiral course, their frequently jointed appearance and their branching. Small actively growing colonies were very abundant.

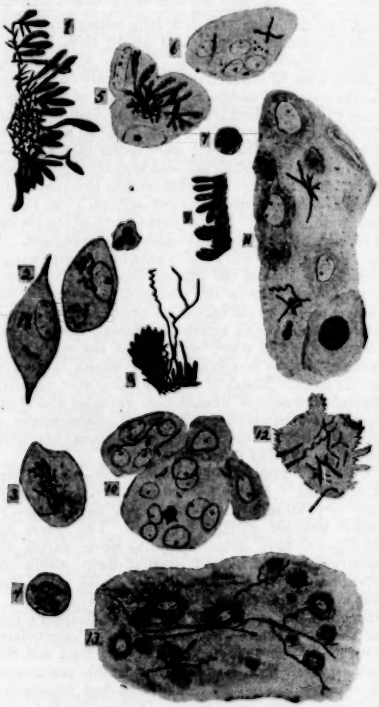
It would seem as though, in the study of the peculiar and characteristic colonies formed by actinomyces in tissues, the presence of the organism in any other form had been for the most part lost sight of. Bostrœm speaks of finding rod-shaped forms in pus cells and suggests that they may in that way be carried to the neighboring tissues and thus infect them. Thoma calls attention to the wavy, spiral threads extending out from the colonies and thinks that they may cause infection of the surrounding parts.

Careful study of the walls of the softened areas present both in the human and in the bovine actinomycosis threw much light on this subject. In many of the young connective-tissue cells of the bovine actinomycosis rod-shaped forms were found singly and in clumps, lying in the protoplasm outside of the nucleus. They were frequently beaded and showed much resemblance to the bacilli of tuberculosis and leprosy in cells. Some of them seemed to degenerate and die off. Others developed into small colonies with branching filaments and gradually extended to the adjoining cells. The nuclei seemed to withdraw as far as possible from the approaching organism. Finally, the cells underwent necrosis and the nuclei disappeared. As the colonies enlarged the necrosis extended and polynuclear leucocytes began to make their appearance.

The rods were also found occasionally in the denser fibrous tissue outside of the young connective-tissue cells. In the areas of softening the same form was often found in numbers in and between the leucocytes and other cells. Branching filaments were rare.

In the human actinomycosis the process was much more rapid. There was less young connective tissue and it broke down quickly. The actinomyces showed

much less tendency to form colonies. Instead they grew luxuriantly in loose filamentous tangles and as clumps of bacilli and possibly of cocci. In the young connective tissue were frequently giant cells which also contained the organism as rods and threads. In the brain rod and filamentous forms were found in and between the cells outside of the area of softening. In the softened areas rods and wavy, spiral-branching filaments were found in great numbers in and between the cells, and small, loosely-woven colonies were very numerous.



Explanation of Figures in Plate.

Figs. 1 to 5 are from a case of bovine actinomycosis.
Figs. 6 to 13, from the case reported in the paper.
Fig. 2 shows the rod forms in the young connective-tissue cells around an area of softening.
Figs. 3 and 5 show the development of a young colony in the epithelioid cells of the young connective tissue.
Fig. 4, a leucocyte containing rod forms.
Fig. 1, the edge of a young colony showing the swollen sheaths around the ends of the filaments. The same condition is seen in Figures 3 and 5.
Figs. 6 and 10, giant cells from the wall of the abscess of the brain with rods and filaments.
Fig. 11, brain tissue just outside of the wall of the abscess showing branching filaments and two degenerating rods.
Fig. 9, edge of a colony in the liver showing the filaments extending out beyond the clubs.
Fig. 7, leucocyte from lung filled with rods.
Fig. 13, branching filaments and small clumps of bacilli and perhaps of cocci in softened area of liver.
Fig. 8, small mass of clubs, some of which are fissured, left after death of colony; from liver.
Fig. 12, section through surface of old colony of liver showing a fused mass of clubs and a few degenerating rods and filaments.
The drawings were all made with a Zeiss one-twelfth oil immersion and No. 4 ocular.

As a colony gets larger the centre undergoes necrosis and in this way arise the hollow-ball formations which Bostrœm regards as the highest structural development of a colony. The fact that there is often an opening through the mantle is probably due also to degeneration of the filaments at one or more points, especially on a side near another colony where the supply of nourishment would undoubtedly be less.

For staining actinomyces no method equals Gram or its modifications. The nuclei of the cells should first be stained with lithium or alum carmine. Then every form of the organism except the clubs stands out in sharpest contrast to the rest of the tissue. It is important that the tissues be thoroughly imbedded in celloidin so that the softened areas and the colonies will not drop out of the sections. If the Gram or Gram-Günther method be employed, the sections after being decolorized and dehydrated in 95 per cent. alcohol can be cleared in oil of bergamot. After mounting on the slide every trace of the oil should be removed by xylol before adding the xylol balsam. Personally I prefer Weigert's modification, because by staining on the slide the section can usually be kept flatter.

For staining the clubs in connection with the filaments in sections, the following method will be found to give quite constant results. It is Weigert's stain followed by a saturated solution of fuchsine in aniline oil:

(1) Aniline oil gentian violet, at least ten minutes.
(2) Iodine solution, 1-2-100 one to two minutes.
(3) Fuchsine (saturated solution in aniline oil), two to five minutes or more.
(4) Aniline oil. Change several times; watch the process of decolorization with low power; when sufficient, wash off the aniline oil with xylol.
(5) Xylol balsam.

The section should be dried with filter paper between each step. The nuclei will appear sharper if the sections are first lightly stained with alum cochineal, which gives the best contrast. The filaments within the swollen sheaths can be best seen in the young colonies of bovine actinomycosis.

Infection in man with actinomyces occurs in four ways: by the mouth and pharynx, by the respiratory tract, by the gastro-intestinal tract, and much more rarely through the skin. In a number of cases, both in man and in cattle, the source of the infection has been demonstrated to be some portion of an ear of grain on the surface of which the actinomyces could be shown to be present.

The case here reported would seem to have been infected through the respiratory tract. From there the process extended to the left lobe of the liver. The other organs and probably the arms were infected through the blood. Although not demonstrated, it is probable that the process extended from the lungs to the abdominal wall, and that in this manner the abscess in the epigastrium arose, for it is characteristic of actinomycosis of the lungs that it has a tendency to extend to the chest wall and then to appear beneath the skin.

Actinomycosis of the brain is quite a rare lesion. Martin has just published, from Chiari's laboratory, two cases which he studied there. He was able to find record of but four others.

It has been claimed that there are a great many varieties of actinomyces. Gasperini enumerates eighteen. This is a question which together with several

other disputed points in regard to actinomycosis will have to be left to the future to decide.

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## TWO CASES OF ACTINOMYCOSIS HOMINIS, WITH REMARKS FROM A CLINICAL STANDPOINT.[1]

BY HOWARD A. LOTHROP, A.M., M.D.

THE rarity of reported cases of actinomycosis in this country, due in a measure to unfamiliarity with the disease, has led me to report two cases observed in Vienna, and to make a few remarks as regards its clinical history and treatment.

CASE I was that of a man about thirty years of age, and a farmer by occupation. His family history was negative, and he stated that he had always enjoyed good health until the onset of his present illness. Somewhat over a year ago a cough set in, which became more or less troublesome and was so obstinate that he sought medical advice. He was pale and had lost considerable weight, and, in spite of treatment the lung symptoms increased, so that he was led to believe that his case was one of pulmonary tuberculosis, and that he had not long to live.

He states that six months later an abscess appeared somewhat below and to the inner side of the right nipple; this ruptured of itself, and some weeks later two smaller ones appeared near this. Meanwhile the patient continued to lose weight and strength, while there was daily considerable expectoration and free discharge of pus from these sinuses. At periods he was confined to his bed, and was subject to chills and fever especially during the last month. Sharp pains referred to the right chest had been the cause of great suffering particularly before the abscess formation. No abdominal symptoms.

*Condition on Entering Hospital.*— Patient well developed, but extremely emaciated and very anemic. Inspection of thorax showed a limitation of respiratory motion on the right side as compared with the left, as well as a considerable degree of retraction. In the right para-sternal line, about one inch below the nipple, was the opening of a sinus; while about an inch to the outer side of this opening were two smaller ones. Pus escaped from all of them. Right apex dull on percussion, and this area of dulness extended down along the sternum to merge with that of the heart and liver. Vocal fremitus and voice sounds increased over this area. Fine moist râles to be heard over whole right lung, while at the apex the signs were suggestive of cavity formation, and the expiratory murmur was prolonged. Over the left lung was an occasional râle, but examination was otherwise negative. Heart sounds normal. Abdomen retracted, slight epigastric tenderness. Respiration 26; pulse 86; temperature 100° F.

Although repeated examinations failed to reveal tubercle bacilli in the sputum, nevertheless the case was considered one of pulmonary tuberculosis with empyema.

[1] Read before the Harvard '87 Medical Club, February 12, 1895.

The further history of this case until death, two weeks later, presented nothing remarkable.

*Autopsy*, twelve hours after death. Rigor mortis present. In the chest were openings of three sinuses, as described above, which admitted large probes for several inches and out of which exuded pus which was very slimy and tenacious in character. Careful examination of this pus with the naked eye revealed numerous small sulphur-colored bodies smaller than the head of a pin; and the suspicion of this being a case of actinomycosis was verified later with the microscope. On opening the chest, the heart was found to be normal, the left lung collapsed, but the right one remained firmly held on all sides by thick, fibrous, pleuritic adhesions. Section of right lung showed areas of brancho-pneumonia scattered throughout the upper and middle lobes, and many of the bronchi filled with a purulent secretion, while these lobes anteriorly were firm, elastic and honeycombed with sinuses and cavities, none of which were larger than a walnut. The same characteristic pus was seen throughout these lobes. The anterior mediastinum was involved in the process; the costal cartilages and sternum about the sinuses were eroded. The adjacent parts of the pericardium and diaphragm were considerably indurated. In the left lung there was nothing abnormal except a slight secretion in some of the smaller bronchi. No excess of peritoneal fluid in the abdomen. Liver and diaphragm united by old fibrous adhesions anteriorly. In the left kidney was a metastatic abscess, size of a pea, containing pus in which were found the actinomyces bodies. Mucous membranes of the mouth intact; no carious teeth. Result of autopsy otherwise negative. Careful microscopic examination revealed the tissue changes and bacterial developments characteristic of actinomycosis, a description which does not come within the scope of this paper.

CASE II. Female, aged nineteen years, employed at housework. Family history negative. Had never been very strong, but remembered having had no serious sickness during childhood. Two years ago she began to have abdominal pain, worse during the menstrual period, located at first deep within the pelvis, but later it became more indefinite and diffuse over whole lower abdomen. Soon there appeared a tender area on the left side just above Poupart's ligament which developed into an abscess. Patient stated that she had considerable fever at this time and was confined to her bed; also that considerable pus escaped on opening this abscess, and there had remained a discharging sinus ever since. During the last year her menses had been very scanty and irregular; the urine had been very turbid and foul while emaciation and loss of strength had steadily progressed. She had never had any cough and her bowels had been easily regulated. She had been confined to her bed for the last four months.

On entering the hospital, her condition was as follows: She complained of some pain in the lower abdomen, and of frequent micturition with considerable vesical tenesmus. There was loss of appetite, and patient was too weak to help herself in any way. There was considerable diarrhea, but no mucus or pus was found in the stools. No symptoms referable to the thorax.

On inspection she was seen to be fairly developed, but very poorly nourished and anemic in the extreme. The chest presented nothing abnormal. The abdomen

was not distended. On a line about one-third of the distance from the centre of Poupart's ligament to the umbilicus, was the opening of a sinus from which there was a profuse discharge of pus, tenacious and slimy in character, and close inspection revealed the presence of the minute sulphur-colored bodies characteristic of actinomycosis. This region was tender; the skin edematous, red and indurated. Percussion and deep palpation revealed a tumor about the size of a large cocoanut corresponding to the left ovarian region. Vaginal examination showed that all the pelvic organs were glued together in one firm, resistant mass. The urine contained a few hyaline and granular casts, otherwise was that seen in a case of chronic purulent cystitis. Actinomyces colonies were found in the urine.

Patient died two days after entrance.

*Autopsy*, sixteen hours after death. Rigor mortis present. Extreme emaciation. Heart and lungs presented nothing abnormal. The abdomen was somewhat prominent; sinus on the left, as noted above. A small amount of turbid fluid escaped on opening the cavity. Corresponding to the tumor described above, the intestines, omentum, left ovary, uterus and bladder were glued together in one mass by fibrous and fibrinous adhesions. Many small abscesses were scattered throughout this mass, connected by small, tortuous sinuses, some of which led to the opening in the abdominal wall, others to the opening into the bladder. The left ovary was about twice the normal size, indurated and honeycombed with minute abscesses and sinuses. Right ovary normal on section. Both tubes filled with pus, some of which had escaped into the uterus, which was otherwise normal. Bladder wall near entrance of left ureter perforated and thickened so as nearly to occlude this ureter. Liver, kidneys and spleen showed the reaction for amyloid degeneration. Pyelonephritis of both kidneys, with pyonephrosis on the left. Careful examination of intestinal mucous membrane revealed in the sigmoid flexure an indurated pigmented scar about one-half an inch in diameter, and this was considered to be the primary source of infection. Some retroperitoneal glands hypertrophied. Buccal mucous membrane and teeth in good condition. The diagnosis of actinomycosis was verified later by careful microscopic examinations and culture experiments.

## HISTORY.

The occurence of actinomycosis is undoubtedly more frequent than statistics would lead us to infer, as shown by the number of cases diagnosed for the first time on the autopsy table. Being a disease of comparatively recent discovery, failure of the clinician to make a diagnosis may be due either to omission in differentiating the possibilities suggested by any given case, or to unfamiliarity with the disease in question. Consequently, as the histological and developmental phases have been carefully presented in a recent article by Dr. F. B. Mallory, a few remarks from a clinical standpoint may not be amiss.

In 1879 actinomycosis had been discovered in man, and found to be identical with bovine actinomycosis. In 1886 there were about seventy-five well authenticated and published cases, and at the present time there are reports of about four hundred and seventy-five. This would suggest that the disease was on the increase, but the more probable explanation is that the profession is more alert to make such a diagnosis according as opportunity presents.

As yet, notwithstanding most careful and scientific investigations, the etiology, morphology and exact tissue changes are still somewhat obscure. It is most probable, however, that actinomycosis is caused by one of the higher orders of bacteria resembling cladothrix and that in nature its habitat is to be found on certain cereals. That the disease is contagious and due to a specific germ, is proved by the fact that these germs have been isolated, made to flourish in culture media, and have been inoculated from beast to beast, and from man to beast. Most of the recorded cases come from Germany, Austria and Russia; but neither age nor occupation seems to be of value as regards occurrence. Males are about three times as liable as females to become victims.

## CLINICAL HISTORY AND DIAGNOSIS.

Actinomycosis in essentially a chronic disease, but the clinical pictures are at extreme variance according to the seat of origin and the presence or absence of the cocci of septic infection. The actinomyces colonies of themselves do not lead to pus formation. When once a colony is established in any given organ, it spreads either by direct extension (contact), or by means of the blood system, never by lymph-channels, for in non-septic cases the lymph-glands remain normal. When sepsis has become a complication in any given case, than the corresponding glands swell, but, nevertheless, are free from actinomyces colonies unless the diseased parts and the glands are in direct contact. In uncomplicated cases the subjective symptoms are generally trivial; the entrance of pyogenic organisms, however, may be of serious moment and lead to most disastrous results.

As regards certain general considerations applicable to all cases, a careful inspection of the pus is the most important, for by this means alone most cases can be recognized, and this should be a routine procedure in all cases of chronic suppuration. In actinomycosis the pus is more translucent, slimy and tenacious, varying according to the degree of septic infection. A small amount should be spread in a thin layer over any dark colored surface, with the idea of searching for small yellow bodies about half the size of the head of a pin. Some are quite translucent and very pale, others opaque and sulphur-colored. If such bodies are present their nature should be determined by the microscope. Given a suspicious case where none of the colonies can be detected with the naked eye, the microscope should invariably be resorted to. It is beyond the scope of this paper to deal with the histological appearances and requisite staining processes.

The appearance of an abscess is very often the first symptom to which our attention is called. If sinuses have formed the clinician can hardly fail to observe the relatively large amount of induration. Rather than one large abscess cavity, we more often find a series of small abscesses connected by tortuous sinuses. The pus from these small, freshly-opened abscesses is particularly characteristic.

In order to understand more fully the diversity of symptoms and appearances produced by actinomyces invasion, we shall consider separately the four primary sources of infection:

I. Head, including face, neck, tongue, teeth and gums.

II. Lungs.
III. Intestinal tract.
IV. Skin.

I. Head. More than 60 per cent. of the recorded cases come under this class. The germ may find its primary nidus in the pulp of a carious tooth, the tartar at its base, in any abrasion of the buccal mucous membrane, or even on the tongue. Its presence may escape detection until we are called upon to open an abscess pointing externally, commonly about the inferior maxilla. It may spread to any part of the face and neck, or seek deep regions and find its way into the cranial cavity. In many cases bone tissue may be eroded and occasionally necrosed.

A list of diseases for eliminative diagnosis may be of service in suggesting the variety of pathological appearances which could be brought about by actinomyces invasion.

(1) Malignant disease.
(2) Primary syphilitic lesions.
(3) Gummata.
(4) Simple periostitis (cocci infection) and necrosis of facial bones.
(5) Dentigerous cysts.
(6) Epulis.
(7) Tubercular processes.
(8) Actinomycosis.
(9) Ulcerative stomatitis (non specific).

II. Lungs. Here the germs are inspired, either directly from the exterior or from colonies already established somewhere in the buccal cavity. The early symptoms are apt to be very obscure and baffle the skill of the most careful and experienced diagnostician. There is generally the history of cough, but only in the later stages do we find a sputum containing colonies, and even this may fail. Most of these cases run a course very similiar to fatal cases of pulmonary tuberculosis, complicated or not by empyema. Actinomycosis, however, shows a great tendency to invade the mediastina and reach the surface of the body; and sooner or later we find an abscess formation, commonly on either side of the sternum and near its lower costal attachments. Unless there has been a characteristic sputum, this may be the first opportunity to establish a diagnosis. Areas of consolidation and fluid accumulation give the usual signs on auscultation and percussion. Occasionally a case may run its course without lung symptoms, and an abscess formation is the first intimation we have of disease; this would seem to be the most hopeful class of lung actinomycosis, there being two recoveries on record.

DIFFERENTIAL DIAGNOSIS.

1. Pulmonary tuberculosis.
2. Empyema.
3. Broncho-pneumonia.
4. Fibroid phthisis.
5. Chronic pleurisy.
6. Pulmonary syphilis.
7. Ecchinococcus.
8. Gummata in chest wall and mediastinum.
9. Caries rib, — simple, tubercular, syphilitic.
10. Malignant disease.
11. Retro-mammary abscess.
12. Abscess pulmonum.
13. Actinomycosis.

III. Intestinal tract. Includes approximately 20 per cent. of all cases. Germ probably enters with the ingesta. Nature of clinical symptoms open to great variation, as suggested by the table for differental diagnosis. For the sake of classification, we may consider the two following fairly well-marked groups of cases:

(*a*) Where the lesions are confined to the pelvic organs and retro-peritoneal tissues, and give rise to obscure symptoms according to their exact location, and finally reach the surface at a late period, after the patient's general condition has been seriously impaired. The diagnosis in these cases must often be a matter of conjecture until too late to hope for recovery.

(*b*) Where there may be no symptoms attributable to any of the abdominal viscera and our attention is first attracted to an area in the abdominal wall which may be red, swollen, indurated, tender and painful. This may develop into an abscess if left to itself, but after the first discharge of pus there remains the characteristic induration, tortuous sinuses and recurrent small abscess formations. These cases have been permanently relieved by total excision, before abscess formation, with the idea that they were malignant tumors, some calling for partial resection of intestine.

Extensive septic infection in abdominal actinomycosis is often a serious complication, and such cases are liable to run a very acute course.

DIFFERENTIAL DIAGNOSIS.

1. Malignant disease in abdominal wall.
2. Gummata.
3. Chronic pelvic inflammatory processes.
4. Inflammation and tumors about the cecum and appendix. — Tubercular, syphilitic, malignant, streptococcus or staphylococcus invasion; concretions and foreign bodies in appendix.
5. Actinomycosis.
6. Chronic tubercular peritonitis.
7. Perinephritis abscesses.
8. Chronic suppurative affections about the liver.
9. All abdominal fistulæ, not readily accounted for, should lead to a careful inspection of the discharge.

IV. Skin. Primary actinomycosis of the skin has been but recently discovered, and is characterized by a chronic ulcerative process. Pus is generally characteristic, and the diagnosis is readily made if the actinomyces colonies are looked for.

DIFFERENTIAL DIAGNOSIS.

1. Syphilis.
2. Cutaneous tuberculosis (scrofuloderma, lupus, tuberculosis of skin).
3. Epithelioma.
4. Actinomycosis.

PROGNOSIS.

Until recently actinomycosis has been looked upon as a very serious disease, but the latest statistics from large clinics are very encouraging. If the lesions are superficial and accessible to surgical treatment, we have much to hope for; if the lesions are deep seated and situated where interference means serious risk to life, then the prognosis is not encouraging, and up to the present time such cases end their miserable existence as victims of a long, wasting disease.

Of the head cases more than 50 per cent. recover; but two lung cases are reported as having recovered, it being six years since their wounds were healed and no recurrence has taken place. Abdominal cases are hopeful where the pathological process is confined to the abdominal wall or near it, but it is a very serious matter when the retro-peritoneal tissues and organs become involved.

Skin cases ought invariably to recover if treatment has not been too long deferred.

TREATMENT.

*A. Prophylactic.*

(1) Legislation which would lead to the extermination of bovine actinomycosis.

(2) Avoiding uncooked cereals in suspicious localities.

(3) Suitable precautions during the treatment of existing cases.

(4) Proper care of teeth and mouth.

*B. Curative.*

Many cases tend to recover if left alone, as shown by scars and the study of tissue changes where the lesions are superficial. The colonies thrive best when removed from oxygen, as shown by laboratory experiments, thus we can understand why deep-seated lesions make such rapid progress and so often terminate fatally. This fact can be taken advantage of in the treatment, as will be mentioned below.

(1) Internal medication. Only very recently has this mode of treatment received serious consideration. From several reliable sources come reports of the almost specific value of the iodide of potash, administered in doses of thirty to forty grains three times a day. Its use cannot be considered harmful, and all such cases should have the benefit of a trial. It is our only refuge in cases unsuitable for surgical treatment.

(2) External medication. The important antiseptic solutions used to-day will destroy the colonies with which they come in contact; the most valuable for irrigation and washes are corrosive sublimate, carbolic acid and peroxide of hydrogen. Iodoform gauze packings are very efficient as well as applications of solid nitrate of silver.

(3) Operative procedures. These are far less bold than formerly. Excisions of the maxillæ are now rarely necessary. We are guided by the fact that the actinomyces colonies thrive far less luxuriantly when exposed to oxygen. All abscesses should be freely opened and their walls thoroughly curetted. Pockets for pus should be obliterated and sinuses carefully followed up and laid open. General principles, applicable to all cases of septic infection, should be resorted to according to indications. Daily irrigations with antiseptics above mentioned should be used, suspicious spots touched with silver nitrate from time to time, and then iodoform dressings applied.

If possible, small isolated foci should be excised, and, if thoroughly done, there need be no fear of recurrence. In lung and deep abdominal cases, surgical methods are of less avail, and one is forced to rely upon the iodide of potash, with the hope that recent claims as regards the value of this drug in actinomycosis will reach our expectations.

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## Clinical Department.

### ACTINOMYCOSIS OF THE ABDOMINAL WALL.

BY S. J. MIXTER, M.D.

The patient was an old man, between sixty and seventy, who had never had anything to do with cattle. He came to the hospital on account of a little bunch just below the umbilicus directly in the median line, which gave him some pain. I etherized him, and started to remove this mass which I thought might be malignant, perhaps of the abdominal wall or perhaps starting from the urachus. It was in the position where you sometimes find the abscesses or tumors starting from the urachus or umbilicus. There seemed to be no clearly defined outline, and finally I went through the abdominal wall on all sides, cutting clear round through the peritoneum expecting it would then be free. I found, however, omentum and intestine attached to it. These were drawn out through the wound, everything freed from the abdominal wall, and the mass was gradually dissected away from the intestine, going down to its submucous coat. Thinking it might be malignant I was intending to excise the intestinal loop. Just then Dr. Whitney came in, having examined the supposed pus, and said it was actinomycosis; so the wounded intestine was folded in by stitches beyond the torn edges, and the wound was united, the whole thing being thoroughly removed as far as could be seen. The fish-bones were not found for some days or weeks afterwards, but at the time of the operation, before I had separated it from the intestine, I cut into it to see if this mass were inflammatory or malignant and found this pus. I said at the time that this was very much like a skewer abscess in the dog. I have seen quite a number of times abscesses which formed in dogs from swallowing the wooden skewers that come in meat. These get into the stomach or intestine and perforate their walls which become adherent to the abdominal parietes, and an abscess forms on the outside, bursts, and the pus and skewer are discharged. It was practically such a process here, because these fish-bones were right in this mass and were the cause of the trouble. They must, I suppose, have carried the infection.

It will be interesting to follow this patient, and see if it is a cure. There was no sign of anything in any other part of the body, and the mass was not very large and was removed with very wide border. The umbilicus was removed; and I should say the incision was something like four or five inches long when sewed up, and part of the rectus muscle on each side having been excised it took a good deal of force to bring the edges of the wound together. It united perfectly, and he had no further symptoms.

The specimen removed consisted of an irregularly oval mass of fibrous-looking tissue to which the umbilicus and skin were adherent on one side and a little fatty tissue on the other. The section exposed a pale, slightly dull surface in which were several small cavities containing a little puriform fluid in which were

numerous minute opaque granules. Imbedded in the tissue were two spindle-shaped fish-bones the size of a hair-pin and about three-fourths of an inch in length.

Microscopic examination of the granules showed them to be made up of masses of minute clubbed and branching bodies radiating from the centre. These were in every way similar to the polymorphous bacillus found in the disease of actinomycosis. The mass was made of rather elongated, and in places round cells, recalling more the structure of a sarcoma than the simple fibrous tissue found surrounding ordinary inflammatory processes.

In this case there is no doubt but that the perforation of the wall of the intestine by the bone was the primary lesion and in the track of this that the actinomycosis had developed.

## DOES ETHERIZATION EVER CAUSE ACUTE LOBAR PNEUMONIA?[1]

BY W. H. PRESCOTT, M.D.

A CASE of pneumonia following an etherization made for the purpose of diagnosis, and occurring in the service of Dr. W. N. Bullard was the cause of this inquiry.

The dangers of and sequelæ to etherization are of sufficient importance to justify any research.

I have been able to find no reference to ether as a cause of pneumonia. I mean the exciting cause; for most authorities agree that acute lobar pneumonia is due to the pneumococcus, although some cases have been attributed to the bacillus of Friedlander and other organisms.

Scattered through the mass of papers yearly written, or in the proceedings of the societies, there are probably many cases where a pneumonia has complicated to a greater or less degree the recovery from an etherization; but it would be impossible to collect all the cases from such sources. I have found, or had sent to me, the record of four; three being in gynecological cases, and one being after etherization for the extraction of a tooth. There is nothing of importance in these records, as they are limited to the fact that during the convalescence the patients had an attack of pneumonia.

There are many cases of broncho-pneumonia and inhalation-pneumonia and cases with pulmonary symptoms, no definite diagnosis being possible, as among the drunkards who have been etherized for the purpose of dressing a compound fracture; but these, while interesting, do not bear upon the subject. A number of physicians, whom I have asked about this matter, have thought they remembered cases of pneumonia, but upon looking them up have found them to be cases of broncho-pneumonia or of inhalation-pneumonia.

In looking up the subject I have been permitted to examine the records of the Massachusetts General Hospital, the Boston City Hospital, the Carney Hospital and the Free Hospital for Women; and I wish to express my obligations to the officers and staffs of these institutions.

At the Free Hospital for Women there was only one case which was suspicious, but there was nothing in the records (there was no autopsy) which would point to the case as being one of acute lobar pneumonia. Dr. F. H. Davenport, under whose care the patient was, and who was kind enough to call my attention to it, said he thought it was a case of pneumonia, although he never could find any physical signs to bear out his opinion. The facts were these: C. H., age forty-three, married, was etherized November 10th (after having been in the hospital six weeks), and colporrhaphy and perineorrhaphy performed. That night the temperature was 105.2°, and nothing was found at any time to explain the condition. Death occurred November 16th, both operation wounds being in good condition.

At the City Hospital I could find no account of a case, although I searched through all the autopsy records (and many of the clinical records) previous to January, 1893. (Dr. Abner Post told me he remembered one case, but I could not find it in the records.)

In looking through the records at the Massachusetts General Hospital, I was aided very much by the excellent paper by Townsend and Coolidge. At this hospital I found one case (Case II), although about the same time there were a number of cases with severe bronchitis.

In the records of the Carney Hospital I found one case (Case I), and another case with severe bronchitis.[1]

Dr. E. W. Cushing has kindly given me notes of the only case occurring in his practice, both private and hospital.

I have no means of accurately judging of the number of etherizations during the time covered by my researches, but there were probably more than forty thousand.

CASE I. B. C., forty, a widow, native of Ireland. Entered the Carney Hospital January 29, 1891, in the service of Dr. Bullard. Family history negative. Well up to one year ago, except for rheumatism nine years ago. Catamenia began at fifteen, and has always been regular until a year ago. During the last year she has been very irregular, and has not menstruated at all for four months. Married fifteen years; no children; no miscarriages. Had frequent micturition at first of her present sickness, but at present had no trouble. Feet swell some at night. Constipation. Appetite fair. Heart and lungs negative. Hepatic dulness diminished. Abdomen distended, somewhat tense, rather dull over central portion, normal in flanks, no fluid detected. Vaginal examination unsatisfactory, but reveals nothing abnormal.

February 8th. Abdomen no longer tender. Large swelling felt, occupying front part of abdomen; somewhat movable, suggesting a pregnant uterus. Fetal heart not distinctly heard; some movement apparently seen and felt in first part of examination. There was a prominence in left epigastric region, which disappeared.

February 10th. Examined again to-day. Not as suggestive of pregnancy. Tumor can be distinctly felt, and is a firm, somewhat irregularly rounded mass, freely movable. Some tenderness in left hypochondrium.

February 14th. Examination under ether. Drs. Gavin, Bullard, Johnson and Conant present. Tumor found occupying a large part of the abdomen; firm, somewhat irregular, quite freely movable. Uterus of about normal size. Vagina and cervix soft and velvety. Result of consultation: operation for removal of tumor advised.

February 16th. Patient refused operation. Last evening was taken with a severe chill. Cough, bloody

[1] Read before the Boston Society for Medical Improvement, December 10, 1894.

[1] Dr. W. N. Bullard has told me since this paper was prepared that this case was also one of pneumonia, but the records confirmed nothing to make such a diagnosis probable.

sputa, and pain in right lower back; considerable dyspnea and some cyanosis. Dulness in right back below angle of scapula; bronchial breathing; few subcrepitant râles.

February 20th. Has been in about the same condition since last entry until last night about twelve, when during a coughing spell there was a gush of water from the vagina, and since then she has been having pains at intervals in lower abdomen. Presentation, breech. Baby born at 2.45 P. M., apparently an eight months' fetus. After much labor the baby was made to breathe, and lived about five hours. At 9 P. M. patient comfortable and apparently in good condition.

February 21st. At 2 A. M. the patient was found unconscious, with dyspnea and cyanosis; pulse not very rapid but feeble. In spite of stimulation, she sank, and died about 6 A. M.

The autopsy showed the right lung, with exception of the very apex, completely solidified.

In this case the symptoms just preceding death would suggest pulmonary embolism as the immediate cause of death, but there is no mention of any having been found.

CASE II. B. C., fifty-three, widow. Admitted to the Massachusetts General Hospital, October 7, 1891, in the service of Drs. Porter and Cabot, and gave the following history: No catamenia for seven years. Has had nine children, being badly torn at the time of her first labor. Discharge from the vagina since last spring, not much before. No bearing down; much backache; some smarting in the vagina. Is now quite weak and has been in bed most of the time during the four weeks preceding entrance.

Examination showed marked irritation of the vagina, with some glairy discharge; cervix lacerated bilateraly; sides of os eroded to a distance of one-half inch beyond the cervical canal; perineum ruptured almost through the sphincter. Temperature 99.6°, pulse 106, respiration 21. Urine pale, specific gravity 1.015; albumin absent.

Corrosive sublimate douche (1 to 10,000) morning and night, cervix painted every other day with glycerite of tannin.

November 6th. Has been doing very well, and the os is looking so well that it is not necessary to operate upon it. Ether. Edges, sides and base of perineum dissected away with scissors as far as the loose tissue, and then brought together with five wire and two catgut sutures.

November 10th. Patient complains of some considerable pain in lower right chest, and on examination by Dr. W. W. Gannett is found to have pneumonia of the right lower lobe. No cough; no expectoration.

November 15th. Patient's local condition about the same.

November 17th. Stitches out. Perineum in good condition.

November 24th. Patient evidently much worse, although the pneumonia is resolving. Heart shows systolic murmur. It is a question whether the heart trouble is new or old.

November 25th. Patient has been slowly failing for the last twenty-four hours; and, in spite of stimulation, she died at 1.20. No autopsy.

CASE III occurred at the private hospital of Dr. E. W. Cushing.

A. B., sixty, was operated upon two days after severe exposure, during which there was a slight chill. Three days after operation her temperature arose to 105°, and she had an attack of acute lobar pneumonia, which complicated her convalescence, but she eventually recovered.

It seems fair, in conclusion, to say, considering the large number of etherizations and the small number of pneumonias reported, that ether rarely acts as the exciting cause of acute lobar pneumonia, and that the few cases found may have been simple coincidences, as Dr. Cushing's case evidently was.

## Medical Progress.

### REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D.

#### ADENO-CARCINOMA OF THE SKIN, ORIGINATING IN THE COIL-GLANDS.

AN example of this rare affection is reported by Dr. Fordyce in the *Journal of Cutaneous and Genito-Urinary Diseases* for February, 1895. He begins by speaking of the different forms assumed by epithelioma of the skin histologically and of the different forms of epithelial cells represented. The tubular form of skin cancer which includes rodent ulcer, may be derived from the epidermis, from the outer root sheath of the hair follicles, and possibly from the glands of the skin. It is to be noted that clinically identical epitheliomata may have various points of origin. Fordyce has examined small benign "pearly" tumors of the face, which are found to be due to epithelial down-growths which have undergone a hyaline degeneration. Sometimes these growths may ulcerate in the centre and spread peripherally. They are much like the benign cystic epithelioma, the histology of which has been carefully studied by Dr. Fordyce.

Adenoma of the sweat-glands is a very rare affection, and few cases with this title have ever been reported. Pathologists are not agreed as to the part played by the sweat-glands in tubular epithelioma. Many have erroneously concluded that when tubular epithelial structures resembling sweat-glands were found, the growth had started from these glands. The location of these growths, away from mucous orifices, where the vascular supply and sources for irritation are less, seems to be the reason for their benign nature rather than their structure or origin. Tubular epithelioma is probably the same pathologically as rodent ulcer. Some writers consider that it arises from the sweat-glands.

The case reported by Dr. Fordyce was that of a man thirty-five years old, from the anterior surface of whose leg the tumor was excised. It was soft, lobulated, about one-half the size of a small egg, and was covered by a small open ulcer. Histologically it consisted of bands and masses of epithelial cells, which strikingly suggested a glandular structure. Cavities containing a colloid substance were found in the epithelial masses. Sweat-ducts enlarged and proliferating were seen, where the lumen and peri-glandular connective tissue were filled with epithelial cells. In the outer parts of the tumor the gland-like structure is not seen, but we have the appearances of an alveolar carcinoma. No participation of the other parts of the skin was found and there were no epidermic globes.

The difference between this tumor and the small-celled cancer which starts from the epidermis, was that in the latter the cells are larger, have no distinct basement membrane, and the tubules do not copy so closely the glandular structure. Fordyce says truly that it is often impossible when a tumor has been in part destroyed by ulceration, to say in what structures the growth started, as those very portions may have been involved in the ulceration. In this case there could be no question of the glandular structure. Karyokinesis of the glandular cells was well seen.

### PARASITES OF MOLLUSCUM CONTAGIOSUM.[1]

At the Fourth German Dermatological Congress Neisser again enunciated his well-known views of the coccidial nature of the contents of the molluscum bodies, and brought forward some new evidence. With regard to the question of psorosperms found in cancer, his own numerous investigations had afforded no sure proof of the existence of cancer parasites. Yet so many remarkable appearances have been discovered that he is stimulated to new investigation.

With regard to molluscum contagiosum, a point of great importance is that specimens hardened in alcohol, while giving a striking histological picture, do not throw light upon the question of parasites. The best specimens are obtained from fresh sections cut with the freezing microtome, best examined in common water. In such sections the transition from normal to altered epithelium is seen. Granular-looking masses sharply bounded are seen in the cells, which gradually are developed into well-defined bodies which are either still somewhat granular, or are smooth and homogeneous. The highest point of development shows a number of large cells, in which, when the nucleus is visible, bodies of variable size, glistening and homogeneous, surrounded by a distinct membrane are seen. These appearances are so striking that they cannot be passed by with the answer "degeneration." The question is asked if a similar degeneration has ever been seen in any other organ. It corresponds to none of the known forms of degeneration, colloid, hyaline, horny, or any other. It is true that the homogeneous bodies seen in these preparations, which he considers to be spores of a spore-cyst, do not fulfil all the requirements of the typical spore-cysts of other protozoa. But it must not be forgotten that the parasites develop here under quite abnormal conditions, being inclosed in epithelial cells which are undergoing a corneous degeneration.

We have, at least, a great many points of analogy between each individual stage and the known developmental stages of other sporozoa; we have the fact that these cell forms without analogy in human pathology, are found in a contagious and inoculable new formation; and that they are included in the epithelial new growths. Numerous attempts have been continually made by Neisser to obtain a further stage of development of the appearances in question, but without any definite results. The most convincing pictures were obtained from fresh sections of mollusca which had been kept in a moist chamber.

As regards the pathological histology of molluscum, the view that it is a degeneration of the sebaceous-glands has been abandoned, even Kaposi at present describing it as a benign epithelial growth. Neisser believes that it is developed from the epithelium of the rete, without any participation of the epithelium of the follicle as has been maintained, although he does not deny the *possibility* that the follicle may be the starting point.

[1] Verhandl. der IV Deutschen Dermatol-Congresses.

### LOCALIZED ERYTHEMATOUS PIGMENTED ERUPTION DUE TO ANTIPYRINE.[2]

At the meeting of the Société de Dermatologie et de Syphiligraphie of March 8, 1894, Brocq offered the following communication on antipyrine eruptions:

In 1891 he was consulted by a woman of twenty-five years, who presented at her menstrual periods a reddish plaque with pretty sharply defined borders, disappearing only partially on pressure, with infiltration most marked at the centre, diminishing toward the edges, which was the seat of an acute burning sensation. After some days the redness would begin to fade, and the infiltration to diminish, but a pigmentation always remained until the next menstrual period, when the plaque reappeared as intensely as before, and in the same place. It was situated on the anterior surface of the left wrist, together with a smaller one of like nature on the side of the neck. The eruption continued to appear regularly at each menstrual period, becoming rather more marked.

Soon afterward another patient was seen, a young girl, who exhibited a like lesion on the back of the right hand, which left a pigmented spot in the intervals, and it was for this that she sought advice. Meanwhile the first patient had presented herself again, this time with an eruption of the plaque at a time when she was not menstruating, and it was then discovered that the night before this last attack she had taken a dose of antipyrine for a headache, and further inquiry revealed the fact that she was in the habit of taking a dose of antipyrine to quiet the pain, at the approach of her periods.

Other cases are cited. A woman of fifty had been affected for six months with similar plaques on the arm, shoulder, and in the lumbar region. They appeared in irregular outbreaks, and left pigmented spots. Sarcoma of the skin had been suggested by a physician, which caused great alarm. On inquiry it was found that she had never taken antipyrine, but confessed that she had frequently taken analgesine, and the appearance of the plaques coincided with the time when the drug was ingested. A man of thirty had been in the habit of taking antipyrine for severe headaches. Large oval plaques would make their appearance on the arms, back and thighs, pigmented, and leaving brown stains. Three hours after taking the antipyrine, burning and itching sensations were experienced, and the following morning the eruption would appear. In this case the effect of the drug was actually proved by trial.

Somewhat similar cases have, it is true, been recorded, but none exactly like those described here. Brocq insists particularly on the small number and circumscribed boundaries of the cutaneous eruptions, upon their pigmentation, and upon their curious tendency to recur always at the same place. The latter tendency is observed in other dermatoses, but usually in particular regions, as the ears, eyelids, genital regions, etc., while here it may occur at any part.

These eruptions are kindred to the rare bullous form that may be produced by antipyrine. A young man of twenty-three could never take the drug without

[2] Annales de Derm. et de Syph., March, 1894.

having an erythematous and bullous eruption of the prepuce and scrotum accompanied by much edema. The localization was always the same.

At the same meeting of the society Wickham showed for Professor Fournier an erythematous eruption simulating closely a syphilitic roseola. At first sight only syphilis would be thought of, although the macules were perhaps of a rather brighter red than in syphilis. No trace of syphilis could be discovered, whereas it was found that the eruption had quickly followed the ingestion of two grammes of antipyrine taken during two successive days. Fournier remarked that he had at first made a diagnosis of syphilis, but that the patient's energetic denials had forced him to a farther study of the case. Antipyrine eruptions could also closely simulate measles.

### LICHEN SCROFULOSORUM.[3]

Since the introduction of the modern methods of microscopical examination, this affection has received new attention. Jakobi, Hallopeau and Sack have declared their belief in its tuberculous character, on the ground of a similarity in its histological features with true tuberculous tissue. Lukasiewicz's observations included 43 cases of the affection, of whom 35 were men and eight were women, seen at the Vienna clinic. They were characteristic cases of the type described by Hebra, namely, small grouped or partly discrete nodules, seated mostly upon the trunk, light or dark red, tipped with a thin, fatty scale, or sometimes a diminutive pustule. In some cases the extremities also were affected. Frequently the peculiar eczema of the pubic and inguinal region was present together with acne cachecticorum of the lower extremities. In 21 cases the eruption was seated upon the trunk alone; in 11 cases on the extremities also; in one upon the lower extremities solely. In 36 of the cases there was a circinate arrangement. It was almost always possible to distinguish the individual nodules of which a plaque was composed.

The most severe cases were made to disappear in from two to eight weeks, under simple strengthening treatment, although external applications, such as cod-liver oil, zinc paste, and ichthyol were used in order to hasten the cure. Two patients suffered a relapse two months after leaving the hospital. A patient with extensive lupus of the extremities, had four attacks of lichen scrofulosorum on the trunk in three years, without any apparent effect upon the lupus. These relapses usually occurred in patients who were outside the hospital in unfavorable hygienic conditions. Most of the cases were in patients between the ages of two and twenty-five. In seven cases there was glandular enlargement, in three scrofulodermata, in six lupus. One patient died of internal tuberculosis. In eight there was a history of hereditary tuberculosis.

Pieces of skin from 12 cases were examined histologically. In the youngest papules, granulation tissue, consisting mostly of epithelioid cells, was found about the follicles. In a more advanced stage giant cells with nuclei arranged about the centre appear, and they become more numerous as the process advances. The infiltration is grouped about the vessels and lymph-spaces also. The sweat-glands are seen to be affected at all stages of the process. At first they are surrounded by a round-celled infiltration, later their place is found to be occupied by a granulation tissue consisting of epithelioid and large, round, giant cells. The latter are sharply bounded, with peripherally arranged nuclei. No evidence of necrosis was seen in any of the preparations. From these histological appearances, the process could not be considered a true tuberculosis, as there was an abundance of vascular supply, and the infiltration was arranged in bands, and never simulated the sharply-bounded, non-vascular nodules of tuberculosis. There is also an absence of cheesy degeneration and the consequent softening and ulceration in lichen scrofulosorum.

The clinical, comparatively benign course of the affection also speaks against its tuberculous nature; no known form of cutaneous tuberculosis is developed and disappears in so short a time. Tubercle bacilli were searched for in vain. Inoculation experiments upon guinea-pigs yielded no result. The writer regards this process as an inflammation which is the expression of a disturbance of nutrition. It is usually met with in tuberculous subjects, not however, in direct connection with the tuberculosis, but in consequence of the cachexia. He does not, like Richl, regard the giant cells as the result of the action of foreign bodies. They are not only found about the hair follicles, but in much greater numbers in the place of the coil-glands. He regards the epithelium of the sweat-glands as playing an important part in the formation of these giant cells.

### PIGMENTATION FROM THE USE OF ARSENIC.[4]

Hebra declared long ago that patients affected with psoriasis who had been treated with arsenic, were especially liable to pigmentation of the skin. His belief was that there was a causal connection between the arsenic medication and the discoloration of the skin. He therefore counselled leaving off the arsenic treatment on the appearance of brown stains upon the skin. Devergie and Bazin also speak of tâches arsénicales. Later, observations were published showing that pigmentation of the skin occurred after the use of arsenic for internal disorders, in cases where it could not be ascribed to the disease itself. This pigmentation has acquired the name of arsenic melanosis.

According to Förster, Haffter and Wyss, the pigmentation from arsenic begins with a yellowish-brown color on the face, trunk, or extremities, and is usually in isolated patches, which may later become confluent. By a persistent use of the drug large portions of the body can become uniformly dark brown. The mucous membranes that are visible remain free from coloration. In its localization on the skin, the pigment from the use of arsenic does not differ from that of Addison's disease. A radical difference, however, lies in the pigmentation of the mucous membranes in Addison's disease, which does not occur in arsenic melanosis. There is no evidence to show that those who have a predisposition to physiological increase of pigment, are the ones usually affected by the arsenic melanosis.

The writer then relates a case of this description, which had been under his own observation. A man of twenty-three years, was treated for psoriasis at first with a ten-per-cent. chrysarobin-traumaticin solution locally. After fourteen days, when the stain from this medication had totally disappeared, he was put upon arsenious acid internally. Two weeks later, when about three-tenths of a gramme of arsenious acid had

[3] Archiv. f. Derm. u. Syph., Heft. 1, 1894.

[4] Müller: Archiv. f. Derm. u. Syph., 1893.

been taken, numerous pigment spots began to appear on his body. They were partly in places that had been covered by psoriasis, were partly independent of these. Face, head and neck, hands and feet, were the only parts not affected by the pigmentation. A microscopical examination of a bit of skin showed the pigment present in the epithelium and in the corium. In the epithelium it was most abundant in the basal cells. It was also to be seen outside of the cells, in the form of small, brown, anastomosing lines. In the corium the greatest collection of pigment was in the papillæ, which contained eight to fifteen pigment masses each, of irregular shape. Granular bands of pigment were also seen here. Whether these pigment masses were really pigmented cells or only free clumps of coloring matter, could not be definitely determined, although it was evident that a portion of them, at least, represented cells. In accord with the investigations of other pigmented conditions, the writer was able to trace the pigmented masses from the cutis upward to the cells of the rete. As to the origin of the pigment in this melanosis, Stierling found in prolonged treatment with arsenic internally, that there was a sudden and pronounced diminution in the red corpuscles and hemoglobin of the blood. Wyss believes that the coloring matter set free from the blood is taken up by the lymph-channels and thus carried to the skin. As to the treatment of this condition, not much is to be said, except that the drug should be at once suspended. Baths and massage have been suggested, but are of doubtful efficacy. Fortunately the condition is rapidly removed by nature, so that a permanent pigmentation rarely results.

### TINCTURE OF COAL-TAR.[5]

Duhring states that the tinctures of coal-tar are not well understood pharmaceutically. The preparations that one obtains are often of no value, sometimes harmful. Experiments were therefore undertaken by Duhring and a druggist, for the purpose of obtaining a reliable preparation for external use. The formulæ for coal-tar tinctures that have been published may be divided into two groups, those made with alkalies, and those made with tincture of quillaia bark or tincture of elm bark. The object was to find a good pharmaceutical preparation, having the virtues of coal-tar, and especially a product miscible with water. Coal-tar, ten parts, in alcohol twenty-four parts, forms, when diluted, one to eight, with water, a cloudy-yellowish fluid, with an oily substance floating upon its surface. It is therefore not a homogeneous preparation, and is liable to produce a dermatitis. Caustic soda and potash will emulsify coal-tar, but strong solutions are necessary. The mixture is made cloudy by the addition of water and the coal-tar separates. Numerous formulæ were experimented with, but they were not found, on the whole, satisfactory, as there was usually a precipitate formed on the addition of water.

Le Bœuf, about 1860, first made use of tincture of quillaia with coal-tar, calling it "coal-tar saponiné." The formulæ for the preparation of the tincture of quillaia vary somewhat, but it was found that a strong tincture, one part to four of 95-per-cent. alcohol was the best. The advantage of using tincture of quillaia with the coal-tar is that a homogeneous emulsion is formed upon the addition of water in any proportion. Tincture of elm bark acts similarly, but the emulsification is not so complete. The preparation called liquor carbonis detergens, manufactured in England as a proprietary article, is probably also made with tincture of quillaia. It has the same properties as the preparation recommended below.

His conclusions are: (1) The best tincture of coal-tar is made with tincture of quillaia. (2) The strength of the tincture of quillaia should be one to four with 95-per-cent. alcohol. (3) The coal-tar, one part, should be digested with the tincture of quillaia six parts, with frequent agitation for not less than eight days, and preferably for a longer period and finally filtered. (4) The resultant product is a brown-black, clear tincture, which upon the addition of water forms a cleanly yellowish emulsion, the color and certain other characters varying with the kind of coal-tar employed. (5) The tincture is stimulating, and is usually prescribed largely diluted with from ten to sixty parts of water as a wash, and is useful where tar is indicated, as in certain forms of eczema, psoriasis, pruritus and in other inflammatory diseases of the skin. It is often more useful when employed weak than strong. (6) This preparation, which may be called "compound tincture of coal-tar," takes the place of several similarly composed proprietary preparations known as "liquor carbonis detergens" and "coal-tar saponiné."

Leistikow[6] considers that coal-tar produces more lasting effects in pruritic affections than wood-tar, oil of cade, etc. Dry eczemas of scalp, neck, abdomen, genitals and extremities, as well as prurigo and psoriasis, have been especially benefitted by its use. He cautions against its use over large surfaces on account of the danger of poisoning, or of setting up a dermatitis. It should not be used on the face. He uses this formula which he paints on with a camels' hair brush.

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|---|---|---|
| ℞ | Coal-tar | ʒ iss |
| | Alcohol, 95% | ʒ i |
| | Ether | ʒ ss |

[5] American Journal of the Medical Sciences, May, 1894.

[6] La Semaine Médicale, No. 59, 1894.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, December 10, 1894, DR. C. F. FOLSOM in the chair.

DR. W. H. PRESCOTT read a paper entitled

### IS ACUTE LOBAR PNEUMONIA EVER CAUSED BY ETHERIZATION?[1]

DR. W. N. BULLARD: The first case which Dr. Prescott reported was in my service, and she was in the hospital for a very considerable time — some four or five weeks previous to examination under ether. She was examined twice under ether; and finally she was transferred to the surgical side after the second examination, with a view to operation. The surgeon considered it wiser to postpone the operation. He advised her to return in three or four months. She was to go the second or third day after the etherization, but she was suddenly attacked with high fever and retransferred to the medical side and with the result mentioned. Shortly afterwards the child was de-

[1] See page 304 of the Journal.

livered by Dr. Farlow, and the recovery from that was perfect; but the woman developed all the symptoms of acute pneumonia and died a few days later. The pneumonia must have developed in the hospital; and the question arose whether ether had anything to do with the pneumonia. One reason why I suggested this subject some time ago was because after this case I had a second one in which the lung was also consolidated, but the patient recovered fully. Very shortly after that I had a third case of lung trouble following etherization. All these cases were gynecological, and it occurred to me whether there was any more danger of pulmonary trouble in cases where there was abdominal disease than in others. Since that time I have not seen any cases of special trouble of the lungs following ether, and I should entirely agree with Dr. Prescott in the light of our present knowledge that it is extremely improbable that *acute lobar* pneumonia would be produced by etherization.

DR. G. B. SHATTUCK: In regard to Dr. Cushing's case, as I understood the report it said the patient had been exposed. That might have been regarded as an etiological factor in that case.

DR. PRESCOTT: I so regarded it. I did not get all the facts from Dr. Cushing, but he told me that two days before the operation his patient, on going to the carriage in her slippers, with nothing over her head, to say good-by to her niece, found, when she went back, the door locked, and had to go round the house, and a slight chill followed this exposure.

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REGULAR Meeting, Monday, December 17, 1894, DR. C. F. FOLSOM in the chair.

DR. F. B. MALLORY described

A CASE OF ACTINOMYCOSIS.[2]

DR. H. L. SMITH: My interest in this subject was aroused by a young man who presented himself at the City Hospital in the summer of 1892, showing upon his face some very peculiar nodules. He had come for treatment for some other affection, and unfortunately disappeared before the diagnosis of actinomycosis, which seemed to me almost certain, could be verified. I should have had no idea as to the character of the lesions had I not seen a similar case in Vienna. I remember well the astonishment of the instructor on being told that none of the American students present had ever seen a similar case.

The case just mentioned, and two or three others, in which I suspected the presence of actinomycosis, led me to look into the matter, and I read what had been written up to that time. It appeared that nearly all the points as to the characters of the germ, which Dr. Mallory has alluded to, had been either demonstrated or foreshadowed, but a number of them were not so completely worked out as they appear to be at the present time.

The clinical features seem to be pretty well established. The diagnosis, in certain cases, appears very difficult, especially where there has been the formation of sinuses, and in that case it seems to be impossible, in many instances, to tell, clinically, whether one may not be dealing with a case of tuberculosis, or any of the other chronic forms of infective disease, especially in those cases where there is secondary pyogenic infection. But in the case of primary disease of the skin or subcutaneous tissues, especially about the face, it does not seem difficult to make the diagnosis. The nodules are quite characteristic, as will readily be seen by comparing these three lantern slides, which were made by me to illustrate a paper on this subject, read before a dental society two years ago.

To the surgeon the most important element is the question of treatment; and, so far as I can learn, this resolves itself into the question of whether it is possible or not to remove entirely the infected area. One German writer speaks in this way: "The disease should be attacked by fire and sword." In four cases, however, recovery is recorded as having resulted from treatment other than excision. One method was the use of the solid pencil of nitrate of silver, or solutions of that substance, so that it has been suggested that in some of the deeper infected areas the seat of disease might be reached by injecting the silver solution into the sinuses, and with some hope of good results.

In one case recovery followed puncture with the needle and passage of an electric current through a solution of iodide of potassium which had previously been injected into the diseased tissue. It should be said that in beginning the treatment the current had been passed without the solution, but without results. This method of breaking up chemical compounds within the tissues, by the electric current, for the purpose of getting the curative effect of an element in its most active state, at the exact spot where its power is most needed, which has been largely developed by M. Gautier, and is called, I believe, "interstitial electrolysis," opens a very promising field for further study. In the present instance the disease had involved a large area in the cheek of a young lady, and it would have been quite impossible to remove it by the knife without great disfigurement. By the method just described the resulting scar was hardly noticeable, according to the report.

DR. W. F. WHITNEY: Dr. Richardson asked me to show this fluid, which came from a cyst over the xiphoid cartilage in the median line, and I have here the reaction showing quite surely that it is of pancreatic origin. The fluid is watery, slightly turbid, when fresh practically odorless, specific gravity 1.011, very faint alkaline reaction, and contains a slight amount of albumin. The characteristic reactions for the pancreatic fluid as distinguished from other abdominal fluids are, first, its diastatic property by which it transforms starch into glucose or grape-sugar as shown by the reduction copper (the ordinary test made for sugar in the urine). Here is such a test, and you see this dark-brown discoloration which has taken place. Second the property of emulsifying fat. This can be done with olive oil, but the oil should be rendered neutral by means of oxide of magnesia and filtered carefully so that a perfectly neutral oil is obtained, and in this specimen the reaction is shown to a slight extent. Lastly, the digestive properties are next to be studied with fibrin, and you see that the greater part of the fibrin has been acted upon by this fluid. Thus the tests agree with what we know of pancreatic fluids. In regard to the formed elements they consist of a few cells with occasional fatty degenerated ones, not essentially characteristic of any particular locality.

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SIR JOSEPH LISTER has accepted the Presidency of the British Association during the meeting which will be held at Liverpool in 1896.

[2] See page 296 of the Journal.

## Recent Literature.

*Surgical Pathology and Therapeutics.* By JOHN COLLINS WARREN, M.D., Professor of Surgery in Harvard University; Surgeon to the Massachusetts General Hospital. Large octavo, pp. 832. Illustrated. Philadelphia: W. B. Saunders. 1895.

It needs a professional career of only moderate length to recall the radical changes which surgical pathology has passed through. From Bichât to Koch there has been a transition in theories and in experimentation perhaps as striking as any department of science has undergone in a century.

It is almost a truism to say that the microscope has re-made pathology. Even the ideas of Rokitansky and of Paget have been changed. The cellular structures of Virchow, the wandering cells of Cohnheim, the fermentation of Pasteur, the bacteriology of Koch, mark the stages of a sure and definite advance.

Accordingly bacteriology and the changes bacteria impose on the blood must form the leading features of any new work on surgical pathology; and they properly occupy all the primary chapters of Dr. Warren's book. Only in morbid growths do we find the cell changes described by Virchow untouched by the newer germ theories. Here, all must admit, that hitherto no causal connection has been established between a spore, a germ or a bacillus, and the occurrence of a morbid neoplasm. Misplaced cells illustrate the anatomical tissues of tumors, but fail to explain the reason of their growth; and reversion to the embryonic type must be a vagary of vital force. Vitiation of the blood by fungi; fermentation of the vital fluids by their multiplication and decay; preventive inoculation by the products of bacterial culture, all play the chief part in pathological changes.

It must not be forgotten, however, that two other great circulatory forces also exist in the currents of the lymphatics, and in the transmission of nervous power. The latter, the greatest and the least understood of all, is the primal cause which governs the expansion and the contraction of blood-vessels and lymphatics; rules the sensitiveness and the absorbent tendency to poisons; and resists their deleterious influences, through vital force.

Certain normal secretions, as the saliva, the gastric juice and the serous fluids, decompose and render innocuous poisonous germs. Nay, there is even an internecine combat of cells: some destroy germs, defeat their generation, or alter their composition. Chemico-vital forces, then, under the leadership of nervous energy, resist decay; restore health; maintain the individual in the vast and chaotic struggle for survival and supremacy. The ductless glands play an important and little understood rôle in restoring health to the blood; ciliated epithelium dusts out the air-passages; cough expels bacilli and their products; diarrhea sweeps away the ptomaines; sweat floods the surface of the body with the diluted results of decaying cells. All these are sanitary.

To favor secretion and to increase excretion are still, as they have always been, sanitary laws. Rational treatment remains but little changed, with the exception of *preventive* medicine. Antipyretics have taken the place of antiphlogistics in the treatment of inflammation, perhaps without much real gain. For fever is often sanitary in destroying hostile germs; and is merely the alarm signal of a mischief which has already occurred.

The presence of a given form of bacteria in a certain disease may be causal, coincident or consequent. The strongest argument for its being causal is in the fairly well-proved claim that the injection of the toxine of this germ aborts its growth, checks its spread, and cuts short the disease. If time shall establish as a fact that, in other diseases, these toxine products of morbid germs are as efficient as they bid fair to be in diphtheria and in rabies, then, indeed, may we congratulate mankind that a discovery has been made in treatment, as certain and as invariable, as was the vaccina of Jenner.

Here is the true road for research; here the great hope of bacterial pathology.

Meanwhile, the results of asepsis in surgery may be justly said to have proved that the prevention of the entrance of these low-grade fungi into the blood and absorbents in wounds, *pro tanto*, prevents fermentation, suppuration and putrefaction. No asepsis being perfect, the occasional failure of primary healing must depend on the susceptibility of the individual; the receptivity of the subject to small doses of the poison, insensibly received.

The practitioner, the investigator, the advanced inquirer will enjoy and profit by this conscientious and broad survey of modern pathology, in which the author has brought discoveries well down to the present moment, and presented everything new, freshly and fully. We older practitioners admire the universal seeking for truth, the balancing of theories, the endless, if sometimes contradictory, experiments, which are admirably collected and verified by the author. For our students we wish he could furnish an abstract and a condensation: for what the beginner needs is not an array of varying opinions, but a summary and digest of all.

We know of no presentation of bacteriology so painstaking and pleasing as that which occupies the first eighty pages of Dr. Warren's book. The colored illustrations and stainings are exquisite, and reflect credit on the liberality of the publisher, as they certainly do on the patient care of the investigator and author.

The writer's classical experiments and illustrations of the microscopic anatomy of repair are all to be found here.

The description of gangrene and sepsis and their chromo-lithographic plates are unusually fine. We are glad to find that we can have more hope in amputating in gangrene than former experience had justified. We confess also to a satisfaction in the author's assent to what we feel sure we have seen ourselves, that pyemia can occur without a wound (for example, in simple fractures); and that suppuration *can* occur without bacteria. In repair, we wish to call particular attention to his experimental proofs that healing by first intention takes *three weeks* to be complete. What a commentary and what a just restraint on the practice of letting laparotomies sit up short of this time. Hernia is well known to follow laparotomy; and even after Alexander's operation on the round ligaments, is now becoming not infrequent.

Fever is treated at length and thoroughly.

The chapters on erysipelas, anthrax, and especially on surgical tuberculosis, are worthy of careful reading; and the latter may be said to be exhaustive.

Bone diseases, also, are thoroughly treated in the light of modern pathology. The chapters on tumors contain the author's investigations on rodent ulcer, and on cancer.

Aseptic and antiseptic surgery are well differentiated, and their merits and proper sphere defined.

There is a valuable appendix on the toxines, on cultures, on staining and preparing, on the examination of tumors. There are two indices; a wealth of illustrations, but not one we could spare. The book is printed in fine, readable style. We congratulate, equally, the medical school with which he is connected, and the author, on a work which brings surgical pathology and therapeutics down to the present day.

"Felix qui potuit rerum cognoscere causas." Amid this sea of inquiries and generalizations, wave after wave of theory rolls in, depositing finally grains of truth, to form a solid land. D. W. C.

*An International System of Electro-therapeutics.* For Students, General Practitioners and Specialists. By Horatio R. Bigelow, M.D., and thirty-eight associate editors. Royal octavo; pp. xxxii, 1147; with 299 illustrations and four plates. Philadelphia: The F. A. Davis Co. 1894.

Even without accepting the electro-therapeutic nihilism of Möbius and Starr, we may well be pardoned for wondering whether electricity is such an important factor in the treatment of disease as to deserve a volume of such bulk. The grandiloquent preface, which tells us that "disease is a difference of potential somewhere; to establish a just equilibrium we must correct the abnormal electric conditions," naturally prejudices the reader. Nevertheless, the work contains much that is of value, and some contributions characterized by careful original work and sound sense. As is to be expected in every composite work the articles vary much in value, and some of them are distinctly the product of enthusiasts who accept electricity as a panacea. In some parts, too, the work is needlessly diffuse; there is something too much of repetition of the history of the development of electrical science, and too much space is given to a presentation of untried hypotheses, concerning which the authors express themselves incapable of pronouncing judgment. After a short article by Herdman urging the need of special education in electro-therapeutics, the scientific side of electricity is discussed, for three hundred pages, by Duff, Wesley Mills, McClure, Engelmann, and Bleyer. Of these articles Engelmann's, on faradism, easily leads. His article is a clear and able discussion of faradic electricity, enriched by much valuable original research. Brubaker writes tolerably on electro-physiology, and Robinson gives a clear, but quite inadequate article on electro-diagnosis, — a field where new and original investigation is much needed. Singularly enough in a work of this sort no diagrams of the motor points are given. Peterson contributes an admirable article on cataphoresis, which has been put upon an exact scientific basis largely by his careful research. Larat tries to prove the value of electrical treatment of intestinal occlusion, Rockwell writes of the treatment of diseases of the alimentary tract, liver and kidneys, and of gout and rheumatism, and N. S. Davis, Jr., of the treatment of thoracic diseases, in rather an unsatisfactory way. Nearly two hundred and fifty pages are devoted to the electro-therapeutics of diseases of the female pelvic organs, with articles by Massey, Grand and Famarque, Kellogg, Goelet, Tripier, Lapthorn Smith, F. H. Martin, Cole and Jarman, and Parsons. Apostoli's methods are fully described, and the virtues of electricity are set forth with somewhat undue enthusiasm, and with a disposition to attribute to ignorance the failures of men who have carefully followed Apostoli's published methods. Henrietta Johnson and Hayes discuss the electro-therapeutics of skin diseases; Sajous of diseases of the throat, and Alleman of diseases of the eye. Riggs contributes a superficial paper on diseases of the brain, giving much space to untried hypotheses. Prince contributes an excellent paper on the neuroses, based on careful work, and exhibiting a critical judgment as to the true value of electricity which is found in but few of the articles. Morton writes as an enthusiast concerning the electro-therapeutics of diseases of the spinal cord, but we fear that few neurologists have so firm a faith in the benefits of electricity as he shows. Leszynsky's article on the treatment of diseases of the peripheral nerves is clear and judicial. Byrne treats of electro-thermal surgery. Newman extols electrolysis in the treatment of urethral stricture, — a faith in which he has few followers. Walling writes of a variety of diseases, from abscess to ulcerations, in which electricity may be useful. Robinson writes of the treatment of various genito-urinary affections, McGinniss of the use of electricity in obstetrics, and Baldy of the use of electricity in pelvic inflammations. Why the electro-therapeutics of the various disorders of childhood are not sufficiently considered under the above headings we cannot say, but Mary Putnam Jacobi contributes a fifty-page article under that heading, which does little more than repeat what others have already said before.

It is perhaps inevitable that in a work of this sort, where of necessity some mention must be made of the use of electricity in every form of disease, the tendency should be to extol electricity as a panacea. This we are convinced tends to prejudice the physician against the real virtues of electricity as a therapeutic agent; for, after all, electricity, although of real value, is applicable only to a limited number of diseases. The present volume contains much that is of value, as we have said; and the physician can find in it useful information in regard to all branches of electro-therapeutics; but the work is too large, and it contains much that is needless and considerable that, to say the least, is still hypothetical. The mechanical execution of the work is poor; several of the illustrations being quite unintelligible.

*Clinical Medicine.* A Manual for the use of Students and Junior Practitioners. By Judson S. Berry, M.D. (Lond.), Senior Assistant-Physician to the Manchester Royal Infirmary, etc. With numerous illustrations and plate in colors. London: Charles Griffin & Co. Philadelphia: J. B. Lippincott & Co. 1894.

The author's aim in this manual is to assist the student and junior practitioners in the examination of medical cases. It is really a treatise on Symptomatology. Etiology and treatment are only incidentally considered. In this way the whole subject is condensed into an octavo of four hundred and seventy pages. The illustrations are numerous; some are taken from photographs or drawings of cases under the author's own care, and the rest from various sources.

*A System of Legal Medicine.* By ALLAN MCLANE HAMILTON, M.D., Consulting Physician of the Insane Asylum of New York City, etc.; and LAWRENCE GODKIN, ESQ., of the New York Bar; with a corps of Collaborators. Illustrated. Vol. II. New York: E. B. Treat. 1894.

The second and final volume of this composite work is not inferior to its predecessor; in some respects it is more attractive. It would be impossible that a book should be dull or unprofitable whose chief chapters were written by such a quartette of authors as Hamilton, Mills, Dana and Knapp. Nearly two-thirds of the text are devoted to the medico-legal relations of mental and nervous diseases; including long chapters on insanity, aphasia, traumatic neuroses and feigned diseases. Other chapters discuss abortion and infanticide (Jewett); birth, sex, pregnancy and delivery (Currier); genito-urinary and venereal diseases (Sturgis); sexual crimes (Craddock). Members of the New York Bar have contributed articles on "Expert Testimony," "The Legal Accountability of the Insane in Civil and Criminal Practice," and "The Measure of Damages in Accident Cases." Judge Baldwin, of the Connecticut Supreme Court, has a short chapter on "Marriage and Divorce," dealing solely with the legal phases of the subject.

This volume, like the first, shows the want of a well-defined plan, and suggests that the printers began their work before all the manuscript was in the editor's hands. There is a hint of hurrying in preparation which more careful editing might have eliminated. But the two volumes, taken together, constitute a treatise of which neither editor nor publisher need be ashamed and to whose general acceptability the critical reader will stand ready to testify.

*The Theory and Practice of Medicine.* By FREDERICK T. ROBERTS, M.D., F.R.C.P., etc., Professor of Materia Medica and Therapeutics and of Clinical Medicine, at University College, London, etc. Ninth Edition. Philadelphia: P. Blakiston, Son & Co. 1894.

Dr. Roberts's "Theory and Practice of Medicine" is so well known from the previous numerous editions that it requires no detailed notice. The present edition has been revised throughout, and parts of it have been rewritten. The order of subjects has in some respects been rearranged. New sections dealing with the general therapeutics of the principal systems and organs have been introduced, and should be found acceptable. The necessary consideration has been accorded to bacteriology in its general aspect and in its relation to special diseases. There never was a time when new editions of old text-books were more necessary to their keeping their place than now.

*Twentieth-Century Practice.* An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D. In twenty volumes. Vol. I, Diseases of the Uropoietic System. New York: William Wood & Co. 1895.

This is a bold undertaking, both on the part of the editor and the publishers. Who shall say, after the changes which the last ten or fifteen years have witnessed in medical science, what will be the modern medical science when the twentieth volume of this encyclopædia shall be issued? The editor feels that the science of medicine having been in great part recast, the time is now ripe for it to be rewritten; but with a prophetic instinct that the recasting is still in progress, he wisely reserves the consideration of the infectious diseases for the later volumes.

In the present volume of seven hundred and thirty-seven pages, with index, Dr. Francis Delafield, of New York, treats of Diseases of the Kidney; Mr. Reginald Harrison, of London, of Surgical Diseases of the Kidney, and of the Ureters; Dr. G. Frank Lydston, of Chicago, deals with Diseases of the Prostate; Mr. E. Hurry Fenwick, of London, with Diseases of the Urine; Dr. Howard A. Kelly, of Baltimore, with Diseases of the Female Bladder and Urethra.

The names of these gentlemen are a sufficient assurance of their competency to discuss the subjects assigned them. It would be an ungracious task to endeavor to point out details in which observation, theory and practice have already made some changes since these writers laid down their pens; and were such an endeavor in any measure successful it would not discredit these contributions, but would only strongly emphasize the fact that we are still in the midst of a period of intense activity in medical science and its application to medical and surgical practice.

*Atlas of Clinical Medicine.* By BYROM BRAMWELL, M.D., F.R.C.P. (Edin.), F.R.S. (Edin.), etc. Vol. III, Part I. Edinburgh: Printed by T. & A. Constable, at the University Press. 1894.

The first twenty-five pages of text of this Part I of the third volume are occupied by the well-known address on the "Thyroid Treatment of Skin Diseases" delivered by the author at the Congress of the Dermatological Society of Great Britain and Ireland in May, 1894. It is illustrated by fourteen plates. Two more plates illustrating the same subject will be issued with Part II.

The next fourteen pages of text are devoted to poliomyelitis anterior acuta, of which there are two illustrative plates. The last eight pages deal with a remarkable case of cancer of the breasts, spleen and other organs. A plate belonging with this case will be issued with the next part.

This third volume will be issued in three fasciculi.

*Landmarks in Gynecology.* By BYRON ROBINSON, M.D. Published by George S. Davis, Detroit, Mich.

These two small volumes are abstracts of some lectures delivered by Dr. Robinson at the Chicago Post-Graduate Medical School. There are six "Landmarks" which he considers of especial importance: Anatomy, Menstruation, Labor, Abortion, Gonorrhea, and Tumors, and his remarks on the diseases of women in connection with these six important subjects, make very interesting reading. He is original and suggestive, possibly at times a little fanciful, but in the main sound and practical. These books can be recommended as a pleasant variation from the ordinary text-book method of treating gynecological subjects, and will serve to while away some leisure hours very agreeably.

*Syllabus of Gynecology.* Based on the American Text-Book of Gynecology. By J. W. LONG, M.D., Philadelphia: W. B. Saunders. 1895.

An extract from the preface will best show the character of this book:

"'The Syllabus of Gynecology' has been written

with a threefold object: first, to be used as lecture notes; second, to enable the student more intelligently to follow and remember the lectures; and, finally, as a convenient reference for practitioners."

This certainly represents a good deal of painstaking labor, as it is a very full synopsis of the work mentioned above, very conveniently prepared for use; but we think there is doubt whether it will practically prove of much value, either to the lecturer, student or practitioner. Of the three it seems to us more likely to prove of value to the student.

*A Clinical Manual.* A Guide to the Practical Examination of the Excretions, Secretions, and the Blood, for the Use of Physicians and Students. By ANDREW MCFARLANE, M.D., Instructor in Neurology and Diseases of the Chest in the Albany Medical College, etc., etc. New York: G. P. Putnam's Sons. 1894.

The author's object in this little book is to give in a concise manner the methods put at the disposal of the practitioner by the recent advances in physiological chemistry and clinical microscopy for the more accurate elucidation of the problems coming daily to his attention. Part I is devoted to the urine; Part II to the stomach contents; Part III to the feces; Part IV to the blood; Part V to pathological fluids; Part VI to the pathogenic micro-organisms. The illustrations are sufficient and well selected. It is a concise and handy book and will be found useful for the purposes which it aims to meet.

*Manual of Practical Morbid Anatomy.* Being a Handbook for the Post-mortem Room. By H. D. ROLLESTON, M.A., M.D., F.R.C.P., and A. A. KANTHACK, M.D., M.R.C.P. Cambridge: At the University Press, 1894. New York: Macmillan & Co.

This small volume consists of directions as to the manner of performing autopsies, together with brief allusions to the common pathological conditions which are to be met with in the various organs. The work is unsatisfactory because it is too large for a mere manual of autopsies, and too small for a treatise on morbid anatomy. The methods of examination of the body cavities are scattered through a mass of inadequate descriptions of gross lesions which can be of little or no value to the novice.

*Diseases of the Skin.* An outline of the Principles and Practice of Dermatology. By MALCOLM MORRIS. Philadelphia: Lea Brothers.

This little book is really a good compendium of dermatology, carefully prepared and thoroughly up to date. It is astonishing to find how much the author has been able to compress into the limited space at his command. The need of such treatises is not, it is true, apparent at the present time, so many of a like nature having been put upon the market during the last few years, but it must be admitted that this one is entitled to a strong word of praise, for the care that has been taken in its compilation. At the beginning he introduces eight chromo-lithographs depicting some of the more common types of cutaneous disease, and these are pretty accurate representations of their subjects. A very fair position is taken with regard to most of the unsettled questions, and the subject of treatment is well and clearly handled.

*Syphilis in the Innocent.* By L. DUNCAN BULKLEY, M.D. New York: Bailey & Fairchild.

This essay, of nearly four hundred pages, is the result of ten years' work. Bulkley considers that the innocent occurrence of syphilis, and the modes by which it may be innocently acquired have received too little attention hitherto, and no full presentation of the subject has ever been made. This essay is essentially a compilation of the literature upon the subject, carefully gathered from a great many and diverse sources. One hundred and sixteen original personal cases of extra-genital infection are recorded, a larger number, the writer remarks, than have ever before been published by an American observer. He then devotes much space to the different methods of acquiring the disease innocently, and while little of importance that was not already known is brought out, yet many curious instances are naturally related. A table of the epidemics of syphilis that have occurred from 1577 to the present time, together with accounts of various endemic diseases which are now regarded as syphilis are appended. One hundred and forty-six pages are devoted to an analytical bibliography of syphilis insontium which should be of value for reference.

*Practical Lectures in Dermatology.* By CONDICT W. CUTLER, M.D. G. P. Putman's Sons.

Dr. Cutler was requested by the students in the Medical Department of the University of Vermont to publish his lectures on Disease of the Skin, and they are bound together in this book in the form of 15 lectures. They form a good introduction to the study of dermatology, suited to the needs of the student who has but a brief period to devote to this subject.

*Sexual Neurasthenia [Nervous Exhaustion]; its Hygiene, Symptoms and Treatment.* With a chapter on Diet for the Nervous. By GEORGE M. BEARD, A.M., M.D. Edited, with notes and additions, by A. D. ROCKWELL, A.M., M.D. Fourth edition, with formulas; 8vo, pp. xii, 294. New York: E. B. Treat. 1895.

To the fourth edition of this well-known work the editor has added a brief account of some of the forms of inordinate sexual desire which occasionally disturb neurasthenic patients, to which condition he gives the name of sexual erethism. With this exception this edition does not differ from the preceding.

*Essentials of Diseases of the Skin.* By HENRY W. STELWAGON, M.D. Saunders's Question Compends. Philadelphia: W. B. Saunders. 1894.

The third edition of Dr. Stelwagon's book has appeared, revised and enlarged, with 71 letter-press cuts and 15 half-tone illustrations. It is arranged in the form of questions and answers, and like the preceding books is intended for the use of the student of general medicine.

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AN AID TO PRESCRIPTION WRITING. — *Doctor* (to fair patient): Put out your tongue. (Meanwhile he writes out a prescription.) There, that will do. — *Miss Chatterbox:* But, doctor, you did not even look at my tongue. — *Doctor:* No, I only wanted you to keep quiet while I wrote the prescription. — *Geillustreed Stuiversblad.*

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, MARCH 28, 1895.

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## THE RELATION OF HEREDITY TO INSANITY AND IDIOCY.

In an interesting discussion on heredity by the Philadelphia County Medical Society, January 25th, Dr. Chapin, Medical Superintendent of the Philadelphia Hospital for the Insane, read a paper on its relation to insanity and idiocy, in which he maintained that insanity is not inherited, that is to say, that it is not directly transmissible from parent to child, in a large proportion of cases.

Referring to personal observations, an examination of 347 patients admitted during two years in the Pennsylvania Hospital showed that the probable and direct cause of insanity in 188 cases was neurasthenia or nervous exhaustion from overwork, strain or worriment, some form of general ill health, the puerperal state, septic conditions, etc.; and the element of inheritance did not appear or was not ascertained. The remainder were cases of paresis and other forms due to brain degeneration, senile failure, or organic disease, some with a history of marked heredity; of which 27, or 14 per cent. only, had a family history sufficiently marked to warrant the assumption that heredity was the probable cause of insanity.

Among Dr. Chapin's conclusions are three which we quote:

Insanity as a disease is not transmissible by inheritance, but may be acquired or evolved from a neurotic heredity as a basis.

A neurotic predisposition is transmissible by inheritance, but there is no absolute rule that it will be transmitted in any given case, or in any case.

In-breeding of neurotic temperaments is most conducive to the creation of a neurotic heredity.

Dr. Chase, Medical Superintendent of the Friends Asylum at Frankford, begins his paper with the statements that the most common cause of insanity is heredity, and that in no class of diseases is a transmission of a predisposition to ill health more potent or more evident than in insanity.

Dr. Barr, Chief Physician of the Pennsylvania Training School for Feeble-minded Children, in his paper on "The Influence of Heredity in Idiocy," regards it as a potent cause, quoting Mercier, Montaigne, Ireland, Moreau, Grabham, Shuttleworth, Beach, Langdon Down, Esquirol, Dahl and Dunlop, in support of his position. In his own experience, based on the careful examination into the family histories of 1,044 idiots, he found 397 families, or 38 per cent., with a history of insanity or imbecility, and 225, or about 21½ per cent., of various neuroses.

The authorities quoted by the readers regarded heredity as the cause of mental disease and defect in proportions of cases varying from 6 to 90 per cent. So wide divergencies of opinion can come only from different uses of terms and definitions or from greater or less accuracy and success in ascertaining facts. So great is the difficulty in obtaining exact information on these points that the Scotch Commission in Lunacy, in a supplement to their thirty-sixth report, entitled "Alleged Increasing Prevalence of Insanity in Scotland," say "We do not know of any way in which it would be possible to obtain information as to the origin of the insanity of the patients on our Register which would be of the smallest statistical or scientific value, and we have not therefore thought that any useful purpose could be served in dealing with the question from this point of view."

In the "consensus of the competent," that heredity is a remote or predisposing cause of insanity for the most part, and that the immediate or exciting causes are to a great degree preventable by avoiding injudicious marriages, by proper education of children and by sensible living, there is good reason to believe that insanity, as well as idiocy, may be controlled.

It is certainly satisfactory that the Scotch Commission can say, after most exhaustive investigations, "At present we can only repeat the conclusions arrived at in many of our former reports — a conclusion the soundness of which we do not think has been called in question by any authority in Scotland — that the facts and figures, so far as they have been already collected and studied, afford no ground for a belief that insanity is to-day more prevalent in Scotland than it was when we entered upon our functions over thirty-six years ago." The increase there, as elsewhere, has been, so far as can be seen, rather apparent than real; and this fact upholds Dr. Chapin's view, that insanity is not so directly transmissible by inheritance as has been generally supposed.

## ETIOLOGY AND TREATMENT OF ACNE.

At the meeting of the British Medical Association held at Bristol in August last, Dr. Stephen MacKenzie read a paper[1] preliminary to the discussion of this topic. A large part of his paper is devoted to the question of the relative share taken by local and by constitutional conditions in causing the disease. Grant-

[1] British Medical Journal, September 29, 1894.

ing that the pathology consists in a blocking of the ducts, followed by inflammation, the question arises as to the cause of this occlusion of the glands by the imperfectly formed products. The physiological activity of the sebaceous glands at the time of puberty is most often the starting-point of the acne, and the affection usually improves as the patient grows older. Dr. MacKenzie takes a very decided stand against the prevalent theory that constitutional disturbances play some part at least in the etiology of acne. He states that while such disturbances undoubtedly occur, they are such common troubles, that nothing at all can be argued from their association with acne, as they occur in his experience as commonly with psoriasis and scabies as with acne. He then takes up the various disorders that have been claimed to have a causal relationship with acne. Anemia is common in females with acne, but acne occurs at a time, especially in females, when anemia is often met with. The acne will not be benefited by the cure of the anemia unless the skin has local treatment also. Constipation also he puts in the same category. Irregularities of menstruation seem at first sight to have a more probable causal connection with acne than any other disorder, as the acne is so frequently aggravated at the menstrual periods. But it will be often found that this is the case where the menstruation is normal in every way. He considers it probable that there is an increased physiological activity of the sebaceous glands at the menstrual period, which would favor the increase of the acne at this time. Flushing of the skin, produced by indigestion, stimulants, changes of temperature, etc., he thinks may act as an aggravating factor, but will not produce it unless the local conditions are favorable. These local conditions he regards as of the greatest importance, while the constitutional state has little etiological significance, except in the broad sense that every debilitating condition is unfavorable to the proper performance of the functions of the glands.

Hence his conclusion that local treatment is of prime importance. Preventive treatment is regarded as very desirable, and medicated soaps are highly prized. The most useful as preventives of acne are the alkaline camphor-sulphur, Peruvian-balsam, and creolin soaps, also neutral salicylic-sulphur, and salicylic resorcin-sulphur powdered soap. In the developed disease the medicated soaps are also indicated. Puncture of the pustules he considers of great importance. Smith's method of touching each pustule with a drop of liquefied carbolic acid and then covering with collodion may be used where puncture is not consented to. Mild ointments of zinc, boracic acid, etc., at night followed by calamine lotion during the day, act well where there is much inflammation. Otherwise more stimulating ointments, as sulphur ointment, may be used at night, or sulphur in powder or suspended in eau de cologne. After the most of the trouble has been removed persistent employment of the medicated soaps is used to prevent recurrences.

Most of the speakers in the discussion that followed agreed with Dr. MacKenzie that local treatment should hold the first place, but were not all inclined to abandon constitutional measures. Dr. Radcliffe Crocker voiced the feeling of the majority of the best dermatologists when he said that attention to disorders of the alimentary canal and other derangements, *together with* local treatment offered better results than local treatment alone. Dr. Payne thought that too little stress had been laid on diet, which was certainly a factor in some instances.

## A STATE SUPPLY OF DIPHTHERIA ANTITOXIN.

It has been understood for some time that the Massachusetts Board of Health was making preparations for the production of a supply of diphtheria antitoxin. The circular printed herewith shows that the work is completed.

Dr. J. L. Goodale was placed in charge of the station established by the Board, and has been carrying on the various portions of his work since September last. The horses, five in number, were inoculated with the first dose of the toxin early in December last, and the successive doses have followed from time to time without untoward incident until an antitoxin has been obtained of satisfactory strength.

How far the supply thus obtained will go in providing for the wants of the community is, of course, an unsettled question; but it is to be hoped that the State Board will extend as far as possible its supervision over the preparation of this class of remedial agents.

COMMONWEALTH OF MASSACHUSETTS.

DIPHTHERIA ANTITOXIN.

STATE HOUSE, BOSTON, March 25, 1895.

THE investigations of Behring and Roux with reference to the value of serum-therapy in the treatment of diphtheria, and the later experience of its use in diminishing the mortality from this disease, are widely known and fully understood.

The State Board of Health, in accordance with its organic purpose as defined in the statutes, having in view the "interests of health and life among the citizens of the Commonwealth," and recognizing the value to the people of any agent which will measurably prevent the ravages of a disease capable of destroying more than a thousand of lives annually in Massachusetts and of causing suffering which cannot be expressed numerically, has prepared a supply of antitoxin, for the benefit, primarily, of such communities in this State as find it difficult or impracticable for any reason to supply themselves with the new agent from reliable sources.

Great care has been exercised in the preparation of this supply to fulfil the most exacting technical requirements for obtaining a pure and trustworthy product, and the tests of its strength have shown satisfactory results.

The Board does not propose to offer it for sale, but its gratuitous distribution will be under strict conditions designed to prevent abuse and waste and to obtain the most beneficial fruits. Each bottle is marked with a number and the date of the preparation of its contents. No antitoxin will be issued except upon a pledge that a full statement of the observed effects of its use will be returned to the Board at the termination of the case. In all instances possible a bacterial diagnosis will be insisted upon. The Board desires to emphasize the importance of using such appliances only as are adapted to the proper administration of the remedy, of remembering that experience has demonstrated that antitoxin is most useful in the earliest stages of a diph-

theritic attack, and of realizing that trained medical skill is required to administer it successfully.

A blank form for the report and a detailed statement of instructions as to methods will accompany each bottle of the antitoxin serum.

For the needs of persons living within twenty-five miles of Boston, it will be required, for the present, that personal application at the office of the Board shall be made by the attending physician in the diphtheria case, or by some person authorized by him. For the convenience of more distant parts of the State, local agencies at public hospitals or municipal health offices will probably be established by the Board in accessible centres.

The office of the Board (Room 141, State House Extension) is open each week-day, except Saturday, from 9 A. M. to 5 P. M., and on Saturday from 9 A. M. to 2 P. M.

SAM'L W. ABBOTT, *Secretary*.

## MEDICAL NOTES.

PROF. GUIDO BACELLI. — Prof. Guido Bacelli, of Rome, has been chosen an honorary member of the Harveian Society of London.

THE REGISTRATION OF MIDWIVES IN ENGLAND. — It is proposed to introduce into the British Parliament a bill for the Registration of Midwives. The bill has been drawn up by a representative committee from training schools and medical societies, with the assistance of an attorney, and is based on the suggested scheme of the midwives' registration association.

THE STORAGE OF ANTITOXIN. — Prof. Thomas R. Fraser (University of Edinburgh) writes as follows to the *British Medical Journal:* "It seems to me that much unnecessary trouble is being taken in the storage and distribution of diphtheria antitoxin. I refer to the elaborate precautions which are required so long as it continues to retain its liquid form. I would suggest that in future the liquid antitoxin should, as soon as it has been obtained, be evaporated *in vacuo* over sulphuric acid, and stored and distributed in the form of a dry powder, whose exact quantitative relationship to the liquid antitoxin or to the toxin itself could easily be ascertained and stated. There can be no doubt that in this dry form diphtheria and all other antitoxins will retain almost indefinitely their original effects. Were this plan adopted it would also be possible considerably to reduce the bulk of fluid injected under the skin."

A CONVINCING TEMPERANCE ARGUMENT. — An English temperance agitator, Miss Weston, publishes in "Ashore and Afloat," under the caption of "A Drunkard's Brain — No Joke but Awful Truth," a statement that at an inquest recently held upon a noted drunkard, on opening his skull, "the odor of alcohol that filled the room was sickening. One of the surgeons then struck a match and held it close to the head. Immediately a blue flame enveloped the whole of the exposed brain." Miss Weston seems to regard truth as a matter of slight importance compared to the virtue of total abstinence. — *Medical Record.*

CONGENITAL SPOTS A MEANS OF RACIAL IDENTIFICATION. — At a recent meeting of the American Academy of Arts and Sciences, Dr. Stephenson, U. S. N., read a paper entitled: "Congenital Spots on Annamites a Means of Racial Identification, with Remarks on Linguistics in Connection with Migration of Peoples." Reference was made, also, to the studies of the Annamese savant, Petrus Truong Vinshky of Cholon (near Saïgon, Cochin China), and to his works on linguistics, comparative philology, etc. Such investigation, as well as examination of bodily peculiarities, enables us to trace the origin and history of various peoples in their world-wanderings.

CREMATION IN GLASGOW. — A question has recently arisen in Glasgow as to the legitimacy of cremation in the absence of special instructions on the part of the deceased. The final decision was, that no society can countenance the cremation of the remains of any one who was known to disapprove of it, one of the forms to be filled containing the phrase, "and I certify that the deceased expressed to me no objection (orally or in writing) to be cremated after death."

A PATHETIC PICTURE. — The *Railway Surgeon* publishes the following letter from a physician practising in a small Southern town to a firm of instrument-makers:

February 12, 1895.

MESSRS. —— & Co. *Gentlemen:* — It is useless and a waste of postage to write me about paying you. My wife and children are on the verge of destitution. My little ones are barefoot and hungry. Our supper to-night consisted of raw turnips. It is so with us all in this section of country. A total failure of crops and a dearth of money have brought us to this terrible strait. Horses worth $100 or $150 are being turned out to die; there is nothing to feed them on. I have not *seen* a dollar for months. To send you this letter I borrow two cents from a friend. I wish I could pay you, and would do so willingly if I could, but it is entirely out of my power till these terrible times pass.

The men at the head of our government are men destitute of conscience or honor. Such distress as they have brought on the people, it seems to me, ought to move a heart of stone.

I hope you will not think hardly of me, but what I tell you are horrible facts. My dear little girls are wearing rags around their feet for shoes. You see that it is impossible for me to pay you. I have dreaded to tell you my fearful condition, hoping you would understand it by my not writing to you. When I can, I will pay you, rest assured.

I am, my dear sirs, your unhappy friend, —— ——.

P. S. The last money that I have had was from the sale of the beef I spoke about last fall. It was a fine thoroughbred Durham, and ought to have brought $40 or $50, but I got $7.35 for it. Since then I have not had one dollar.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, March 27, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 34, scarlet fever 47, measles 125, typhoid fever 2.

THE BOSTON LYING-IN HOSPITAL. — This hospital has issued its annual report for the sixty-second year of its existence.

Since the opening of the hospital at its present situation in the year 1873, 7,226 patients have been received and treated in-doors; and in the out-patient department, since its establishment in the year 1881, 6,405 patients have been cared for under the supervision of the hospital staff. Of the total number of

patients treated in the hospital since 1873, 126 have died; but of the 4,565 cases admitted since the introduction of the antiseptic methods of treatment, all except 34 have been successfully discharged, and this has been the result, notwithstanding the difficult and complicated nature of many of the cases. In the larger part of those which resulted fatally the patients were brought to the hospital in a moribund condition. Only 15 deaths have occurred out of the whole number of out-patient cases cared for.

The number of women received and treated at the hospital, during the past year, has been 557, an increase of 56 over the number treated during the preceding year. In addition to the above the number of babies born and cared for has been 558.

The daily average of patients (mothers) in the hospital has been 23.8, being an increase over that of last year, which was 22.8. The average stay of patients in the hospital has been 15.4 days, a decrease from that of last year, which was 16.4 days.

The number of out-patients treated was 1,485, an increase of 133 over the number treated last year. The total number of patients (mothers) has therefore been 2,042, an increase of 189 over that of last year.

The total number of deaths the past year has been eight, five in the hospital and three in the out-patient department, a mortality of less than one-half of one per cent. Of the five patients who died in the hospital, four were cases of convulsions. The fifth patient died suddenly of embolism twelve hours after the birth of the child.

During the past year the total expenditures for all purposes were $17,792.40, which included an average cost for each hospital patient (mother) of $31, and an expense of $522.24 for the out-patient department.

The care of needy and deserving patients in childbirth is the primary purpose of this hospital, but it is also a centre for the obstetrical training and education of physicians and nurses.

The hospital is dependent to a large extent upon the generosity of its friends for carrying on its work. It is at present in need of a sum of $10,000 to enable it to meet its annual expenses, and has issued an appeal for contributions towards such a sum. Only to those who do not know its work is it necessary to say that no medical charity is more worthy of support.

A Polyglot Apothecary. — On the sign-board of a drug-store on Salem Street, Boston, and on the back of the prescription blanks furnished by the proprietor, he states that no less than twelve languages are spoken at his shop; namely, English, French, German, Italian, Greek, Turkish, Spanish, Russian, Hebrew, Hungarian, Roumanian and Portuguese. That an apothecary should find it necessary to advertise his ability to speak English in Boston is a curious indication of the way in which a foreign population has monopolized certain districts in the city. The changes which have taken place in the character of the population of the North End are shown by the fact that this drug-store is within a stone's throw of the Cushman School, which stands on the site of Charlotte Cushman's birthplace, on Parmenter Street.

### NEW YORK.

Commencement at the New York College of Veterinary Surgeons. — The New York College of Veterinary Surgeons and School of Comparative Medicine held its thirty-eighth annual commencement on March 18, in the Concert Hall of Madison Square Garden. Prof. James Law, of Cornell University, delivered the address, and diplomas were presented by Dr. Herman M. Biggs, President of the Board of Trustees, to thirty-one graduates.

The New Examiner in Lunacy at Bellevue Hospital. — Dr. Alexander Trautman has been appointed a public examiner in lunacy at Bellevue Hospital, in place of the late Dr. Matthew D. Field. For a number of years he was one of the resident staff at the city asylum on Ward's Island.

Proposed Legislation against Midwives. — A special meeting of the Medical Society of the County of New York was held on Saturday evening, March 16th, in response to the following call, signed by twenty members:

Whereas a number of instances have occurred in this city where reputable members of this Society have been arrested for complicity in malpractice cases without even the shadow of a reason for such action on the part of the police, therefore we request a special meeting of the Society for the purpose of ascertaining the rights and privileges of physicians who may be called to attend such cases.

On calling the meeting to order the President, Dr. E. H. Grandin, said that the position in which the medical profession had been placed by the unwarranted action of the police in several recent cases of women suffering from the effects of abortive operations, demanded action on the part of the Society. If a physician did not respond when called upon he would be called hard-hearted and unfeeling. If, on his arrival, he reported his suspicions to the police and refused to have anything to do with the case, he would render himself liable to suit for libel if his suspicions proved incorrect. If he did take hold of the case and reported it, he was, in view of recent police action, liable to arrest as an accomplice. After several resolutions had been proposed and debated at some length a resolution was adopted to the effect that the counsel of the Society be requested to prepare a legal opinion to guide members in malpractice cases. The following resolution was unanimously referred to the executive committee for action:

*Whereas*, Recent unjustifiable arrests of reputable physicians and members in good standing, of this Society, for performing their professional duties in cases of criminal operation induced by midwives, have outraged the feelings of the members of our profession and in the eyes of the public have placed the gentlemen accused in the position of criminals; and,

*Whereas*, In the vast majority of instances these criminal operations are performed by midwives, quacks and professional malpractitioners; and,

*Whereas*, In spite of the occasional spasmodic activity of the police in attempting to suppress these malefactors, the number of cases in which criminal operation is performed is by no means on the decrease; therefore, be it

*Resolved*, That a bill be drafted and presented to the Legislature through the proper channels, making it a criminal offence for any one to practice midwifery in the city of New York excepting those holding the degree of M.D.; thus legislating midwives out of existence and effectually curtailing, if not absolutely suppressing, their shameful and notorious practices.

## Miscellany.

### A PATENT MEDICINE BILL IN MINNESOTA.

IN an able editorial upon the bill now before the Minnesota Legislature, to regulate the sale of patent medicines in that State by requiring the printing of the formula of the medicine upon each package, the *North-western Lancet* states that the chief argument used by the opponents of the bill is that its passage would close several patent medicine factories, and cause a considerable loss to certain dealers having these goods on hand. The *Lancet's* answer to this objection is well stated:

"If patent medicines are harmful in themselves (and many of them are), or if they deceive and rob the people by causing them to pay high prices for compounds that are practically inert (and who can doubt it?) then their sale should be regulated, even at the expense of closing a few factories, or of entailing a loss of considerable money to the dealers in these medicines."

The objection that the bill is a piece of class legislation, intended to benefit physicians by making people come directly to them instead of first trying to cure themselves by the use of patent medicines, the *Lancet* compares to the opposition which invariably arises to the enactment of regulations for the benefit of the public health, such as compulsory vaccination, or quarantine regulations for the prevention of contagious disease:

"When any measure of this kind comes before the public the cry is always raised that it is being pushed in the interest of the medical profession, when a little common-sense would show that physicians in supporting such measures are really working against their own immediate pecuniary interests. An epidemic of small pox would enrich the medical profession a hundredfold above what comes to it from the small fee for vaccination, and a single visitation of cholera would give every physician in the community a large income while it lasted. Yet when cholera threatened these shores two years ago the medical societies were foremost in urging (not always successfully) the local authorities to take proper sanitary precautions in the way of cleanliness and quarantine, and many individual physicians gave much [unrequited] time and labor to furthering this end.

"It is the same with this patent medicine bill. The physicians in urging it are acting from disinterested motives, and if they are its chief supporters it is because they are the ones who are most in the way of seeing how crying an evil it is meant to regulate, and how much money is wasted by those who can least afford it in buying medicines that are either useless or positively harmful. But no one who knows anything of the actual practice of medicine could for a moment suppose that it has a rival in the use of patent medicines. As a matter of fact it is but rarely the case that a choice is made between buying a patent medicine and consulting a physician. The home-made ointment or liniment or 'yarb tea' is the true rival of the patent medicine. 'That tired feeling' would not be carried to the doctor even if there were not a dozen sure cures advertised in every newspaper, and the modesty that forbids consulting a physician about a 'female weakness' finds itself sympathetically drawn by Lydia's complacent gaze. No, the doctor does not fear that he will not be sought in preference to the patent medicine vender if there is anything the matter worthy of his attention, and honest medicine has no more to fear from quack remedies than it has from faith cures, astrology or any of the kindred sciences."

If the Minnesota Legislature passes this bill, it will have placed itself in advance of many Eastern States, and set an example in this matter which they would do well to follow.

### EFFECTS OF CASTRATION UPON THE ENLARGED PROSTATE.

#### UNILATERAL CASTRATION.

IN reply to a request published in various medical journals by Dr. White of Philadelphia, for information as to the effect of unilateral castration upon the prostate, E. Hurry Fenwick publishes in the *British Medical Journal* for March 9th, the results of his observations during the last ten years, upon the condition of the prostate of unilateral castration, as well as that of atrophy of the testicle or monorchism. Fenwick endorses Dr. White's statement concerning the shrinkage of the prostate after bilateral castration, and expresses the opinion that the profession and the public "owe him a real debt of gratitude for the introduction of an important addition to our means of combating certain forms of enlarged senile prostate. The results of his experience, however, do not bear out Dr. White's surmises as to the effect of unilateral castration. His notes of cases and remarks are as follows:

UNILATERAL CASTRATION.

1. Left testis removed for tuberculosis, 1889; prostate examined, 1890; left lobe equal to right, both healthy, neither atrophic.
2. Left testis removed, 1863; examined, 1889; left lobe of prostate larger than right.
3. Left testis ablated, 1887; examined, 1894; very little prostate felt, and what was detected of it was confused; no interlobular furrow appreciable.

MONORCHIDS.

4. Left testis absent; left lobe of prostate flat, slightly larger than right.
5. Left testis absent; left lobe of prostate atrophied, right lobe normal.

EXTREME ATROPHY OF TESTIS.

*A. After Inflammation.*

6. Left testis minute; both lobes of prostate equal, but flattened.
7. Left testis minute; left lobe of prostate large, right lobe atrophic.
8. Right testis minute; right lobe inflamed and cirrhotic; left lobe small.
9. Left testis very small; left lobe of prostate larger than right.
10. Right testis pea-sized; left lobe of prostate very small, half the size of right.
11. Left testis minute; both lobes of prostate equal, smooth and plump.

*B. Cause of Atrophy Unknown.*

12. Left testis very small; both lobes of prostate equal.
13. Right testis atrophic; lobes of prostate equal, flattened and cupped.
14. Left testis small; prostate of average size, left lobe slightly the larger.
15. Left testis unfeelable; prostate equal lobed.
16. Left testis small; left lobe of prostate the smaller.
17. Left testis small; prostatic lobes of equal size, but flattened.
18. Both testes retained in groin, and very small; both lobes of prostate equal; became affected by infiltrating carcinoma (primary).
19. Both testes in groin bean-sized; both lobes of prostate equal but small.
20. This case is interesting; left testis in groin very small; patient suddenly affected with gonorrheal parenchymatous prostatitis; both lobes were found equally and greatly enlarged.

"I point out with some diffidence that these cases are mostly at variance with Dr. White's surmises. At the

same time I am aware that rectal examination, however skilled, is as uncertain a guide to the activity of the prostate, as it is unreliable for estimating the amount of urinary obstruction which may be present. Moreover, none of us knows the normal shape of the prostate, for it varies with each decade and with each individual. Lastly, few seem to appreciate the fact that the prostate is often changed in rectal contour by posture, by vesical distention, and by excessive use."

### BILATERAL CASTRATION.

Fenwick also reports (in same journal, March 16th), eight cases upon which White's operation (double castration) has been performed for senile enlargement of the prostate. An interesting observation on the effect of castration upon the normal prostate was that of a man aged forty-five years, upon whom the operation was performed for extensive epithelioma, primary in the penis. Six months later the prostate was reduced to the size of a small bean. In seven of the eight cases there had been improvement, more or less marked according to the conditions present at the time of the operation. The fibrous prostate, which is tough, hard and small *per rectum*, does not diminish so quickly as the soft, elastic, fibro-myomatous gland. As to the return of voluntary micturition: in those cases in which the muscular power was still present though impaired, some return of normal micturition took place within the first week. If the atony was pronounced, however, the catheter could not be discarded. The statement applies to castration, as to all prostatic operations, that the prognosis of the return of voluntary micturition depends upon the muscular power of the bladder.

From the study of his cases Fenwick comes to the following conclusions:

(1) There is no doubt that slow shrinkage of the prostatic tissue in many of the forms of senile enlarged prostate ensues upon double castration. Further experience must, however, decide as to whether every form of prostatic growth is thus affected.

(2) It is certain that escape from catheter life after castration depends absolutely upon the health of the vesical muscle. The grade of the atony, therefore, should be most carefully estimated before any hopes of relief from catheterization are held out. To promise a confirmed catheter case that orchectomy will do away with the instrument, will merely bring discredit on the operation and disappointment to the patient. Even after prostatectomy we are unable to promise such relief if the muscle is hopelessly atonic, and we cannot do so after castration.

(3) It is possible that castration by diminishing the microbic infection from the inflamed senile prostate, will remove a constant menace to the integrity of the kidneys, for it will control the most prolific source of ascending pyelitis.

It appears to me that double castration will prove of value in the following conditions:

(1) In reducing bulky overgrowth of the lateral lobes of the prostate. It may be found that the small, tough, fibrous, median or lateral vesical outgrowths will be better removed by suprapubic prostatectomy.

(2) In controlling the distress and danger of an inflamed senile enlarged prostate.

(3) In lessening the frequency or difficulty of introducing the catheter in advanced or confirmed catheter life.

(4) In avoiding the mechanical difficulty of crushing a post-prostatic or post-trigonal stone, by levelling the base of the bladder, thus rendering the operation of litholapaxy feasible in a condition in which before it was impracticable.

(5) In reducing chronic cystitis and recurrent phosphatic calculus in cases of confirmed catheter life.

## METEOROLOGICAL RECORD,

For the week ending March 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A. M. | Relative humidity. 8.00 P. M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A. M. | Direction of wind. 8.00 P. M. | Velocity of wind. 8.00 A. M. | Velocity of wind. 8.00 P. M. | Weather.* 8.00 A. M. | Weather.* 8.00 P. M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S..10 | 29.98 | 38 | 48 | 29 | 51 | 61 | 56 | S.W. | W. | 6 | 10 | C. | O. | |
| M..11 | 30.26 | 28 | 30 | 26 | 49 | 65 | 57 | N. | N. | S.E. | 9 | 10 | O. | F. | |
| T..12 | 30.24 | 31 | 34 | 28 | 53 | 68 | 60 | E. | S.E. | 11 | 8 | O. | O. | |
| W..13 | 30 12 | 38 | 43 | 32 | 70 | 91 | 80 | S. | E. | 9 | 11 | O. | O. | |
| T..14 | 29.90 | 38 | 49 | 28 | 92 | 40 | 66 | N.W. | N.W. | 18 | 19 | O. | C. | .80 |
| F..15 | 30.06 | 20 | 27 | 14 | 44 | 100 | 72 | N.W. | N.E. | 7 | 3 | O. | N. | .12 |
| S...16 | 29.64 | 30 | 37 | 23 | 87 | 57 | 72 | N.W. | N. | 10 | 13 | N. | C. | .06 |
| ☞ | 30.03 | | 38 | 26 | | | 66 | | | | | | | .98 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatning; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 16, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Perceptage of deaths from Infectious diseases. | Acute lung diseases. | Diarrheal Diseases. | Typhoid fever. | Diphtheria and croup. |
|---|---|---|---|---|---|---|---|---|
| New York | 1,956,000 | 872 | 318 | 10.78 | 19.58 | .99 | .33 | 3.96 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 538 | 143 | 10.26 | 22.50 | .90 | 2.70 | 4.50 |
| Brooklyn | 1,043,000 | 399 | 146 | 9.00 | 21.25 | 1.00 | — | 5.00 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 217 | 64 | 4.14 | 14.72 | — | — | 2.30 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 96 | 26 | 2.08 | 19.76 | — | 1.04 | — |
| Cincinnati | 325,000 | 133 | 32 | 8.36 | 22.04 | — | 3.04 | 3.80 |
| Cleveland | 325,000 | 114 | 41 | 9.68 | 21.12 | 4.40 | 3.52 | .88 |
| Pittsburg | 272,000 | 84 | 29 | 8.33 | 19.04 | 3.57 | — | 3.57 |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 67,154 | 50 | 12 | 8.00 | 32.00 | — | — | 6.00 |
| Charleston | 65,185 | 27 | 10 | — | 3.70 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 35 | 12 | 14.28 | 28.57 | 5.72 | — | 2.86 |
| Fall River | 92,233 | 50 | 27 | 4.00 | 30.00 | — | — | 2.00 |
| Lowell | 79,633 | 45 | 14 | 8.88 | 17.77 | 2.22 | 4.44 | 2.22 |
| Cambridge | 79,607 | 29 | 7 | 3.45 | 20.70 | — | — | 3.45 |
| Lynn | 68,123 | 34 | 10 | 5.88 | 2.94 | — | — | — |
| Springfield | 50,384 | 17 | 5 | — | 41.16 | — | — | — |
| Lawrence | 49,990 | 19 | 8 | 5.26 | 21.04 | — | — | — |
| New Bedford | 47,741 | 21 | 4 | — | 23.80 | — | — | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 11 | 4 | — | 18.18 | — | — | — |
| Salem | 33,155 | 9 | 2 | — | 11.11 | — | — | — |
| Haverhill | 32,925 | 10 | 4 | — | 10.10 | — | — | — |
| Malden | 30,209 | 14 | 2 | — | 35.70 | — | — | — |
| Chelsea | 29,406 | 9 | 5 | 11.11 | 11.11 | — | — | 11.11 |
| Fitchburg | 29,303 | 7 | 2 | 14.28 | 14.28 | — | — | — |
| Newton | 28,837 | 3 | 0 | 33.33 | — | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,984 | 13 | 4 | 23.07 | — | — | — | 15.38 |
| Waltham | 22,958 | 5 | 2 | 20.00 | 40.00 | — | — | — |
| Quincy | 19,642 | 4 | 2 | — | 25.00 | — | — | — |
| Pittsfield | 18,892 | 8 | 2 | — | 12.50 | — | — | — |
| Everett | 16,583 | 8 | 3 | — | 25.00 | — | 12.50 | 12.50 |
| Northampton | 16,331 | 4 | 0 | — | — | — | — | — |
| Newburyport | 14,073 | 9 | 2 | — | — | — | — | — |
| Amesbury | 10,920 | 5 | 0 | — | 40.00 | — | — | — |

Deaths reported 3,012: under five years of age 975; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 303, acute lung diseases 631, consumption 349, diphtheria and croup 106, typhoid fever 33, diarrheal diseases 31, scarlet fever 30, measles 25, whooping-cough 19, cerebro-spinal meningitis 17, erysipelas 9, small-pox 3.

From scarlet fever New York 13, Philadelphia 4, Brooklyn 3, Boston and Providence 2 each, Cleveland, Nashville, Lynn, Newton, Waltham and Everett 1 each. From measles New York 18, Brooklyn 4, Cincinnati, Pittsburg and Providence 1 each. From whooping-cough New York 9, Philadelphia 5, Brooklyn 2, Washington, Somerville and Lawrence 1 each. From cerebro-spinal meningitis New York 5, Lynn 3, Brooklyn, Somerville and Worcester 2 each, Fall River, Chelsea and Fitchburg 1 each. From erysipelas New York 5, Philadelphia, Brook-

lyn, Boston and Taunton 1 each. From small-pox Philadelphia 2, Cincinnati 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending March 9th, the death-rate was 35.0 Deaths reported 7,117: acute diseases of the respiratory organs (London) 1,366, whooping-cough 111, measles 73, diphtheria 62, diarrhea 39, fever 30, scarlet fever 23, small-pox (Derby) 1.

The death-rates ranged from 16.1 in Derby to 48.0 in Plymouth; Birmingham 21.5, Bradford 35.7, Brighton 40.1, Cardiff 34.8, Hull 23.1, Leeds 27.4, Leicester 19.6, Liverpool 45.2, London 41.2, Manchester 32.2, Newcastle-on-Tyne 34.0, Nottingham 37.7, Oldham 34.4, Preston 35.2, West Ham 28.0.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 16, 1895, TO MARCH 22, 1895.

CAPTAIN EUCLID B. FRICK, assistant surgeon, will be relieved from duty at Fort Townsend, Washington, to take effect upon the expiration of his present leave of absence and will then report for duty at Presidio of San Francisco, Cal., relieving CAPTAIN CHAS. WILLCOX, assistant surgeon.

CAPTAIN WILLCOX, upon being thus relieved, will report for duty at the U. S. Military Academy, West Point, New York, relieving FIRST-LIEUT. FREDERICK P. REYNOLDS, assistant surgeon.

FIRST-LIEUT. REYNOLDS, on being thus relieved, will report for duty at Fort Sam Houston, Texas.

The leave of absence on surgeon's certificate of disability, granted FIRST-LIEUT. ALEXANDER S. PORTER, assistant surgeon, is extended four months, on surgeon's certificate of disability.

The leave of absence for seven days, granted MAJOR PHILIP F. HARVEY, assistant surgeon, is extended twenty-one days.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 23, 1895.

MICHAEL BRADLEY, medical director, ordered before Retiring Board, March 20, 1895.

F. A. HESLER, passed assistant surgeon, ordered to the U. S. S. "Philadelphia."

R. P. CRANDALL, passed assistant surgeon, detached from the U. S. S. "Philadelphia," ordered home and granted three months' leave of absence.

## APPOINTMENTS.

DRS. J. B. BLAKE and F. B. LUND have been appointed surgeons to out-patients at the Boston City Hospital.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, April 1st, at 8 o'clock.

Dr. Hamilton Osgood will read a paper on "The Treatment of Sclerosis, of Various Forms of Paralysis, of other Nervous Derangements, by Suggestion." Drs. J. J. Putnam and M. Prince will discuss the paper.

Dr. A. K. Stone will present a paper on "Prostitution; The Relation of the Experience of Europe to the Solution of the Problem in Boston." Drs. J. C. White and A. Post have been asked to take part in the discussion.

JAMES G. MUMFORD, M.D., *Secretary*.

THE WARREN CLUB. — A regular meeting of the Club will be held at 220 Clarendon Street, April 2, 1895, at 8 P. M.

Dr. W. S. Thayer: "Our Present Knowledge Concerning the Parasites of Malarial Fever."

Dr. J. E. Goldthwait: "A Case of Tendon Transplantation."

W. E. PAUL, M.D., *Secretary*.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION. — The regular monthly meeting of the Surgical section of the Suffolk District Medical Society will be held on Wednesday evening, April 3d, at 8 o'clock, at 19 Boylston Place.

"Cyst of the Finger, with Two Cases," Dr. F. M. Briggs.

"A Case of Acute Intestinal Obstruction from the Impaction of an Enterolith; Operation; Death," Dr. M. H. Richardson.

"The Treatment of Elbow-Joint Fractures by Acute Flexion, without Splints; Results with Cases," Dr. H. L. Smith.

C. L. SCUDDER, M.D., *Secretary*.

## RECENT DEATH.

SIR WILLIAM SCOVELL SAVORY, F.R.S., consulting surgeon to St. Bartholomew's Hospital, surgeon to Charité Hospital, died in London on March 4th, aged sixty-nine.

## BOOKS AND PAMPHLETS RECEIVED.

Chicago Summer School of Medicine, Chicago, Ill., Announcement, 1894.

Statistical Methods. By George W. Moorehouse, M.L. Reprint. 1894.

The True Field of Duty of the Railway Surgeon. By Clark Bell, Esq. Reprint. 1894.

Report of the State of New York State Commission in Lunacy, Albany, December 26, 1894.

Return to an Order of the Legislative Assembly of the 13th December, 1893, upon Coroners' Inquests.

Bicycling for Women from the Standpoint of the Gynecologist. By Robert L. Dickinson, M.D., etc. Reprint.

Hygiene of the Anus and Contiguous Parts. By J. Rawson Pennington, M.D., Chicago. Reprint. 1895.

Contributions to the Physiology and Pathology of the Nervous System. By Isaac Ott, M.D. Reprint. 1893.

Some Remarks on Skiascopy or the Shadow Test. By J. Thorington, M.D., of Philadelphia. Reprint. 1895.

Annual Report for 1893 of the Medical Officer of Health of the Vestry of St. George the Martyr, Southwark, Eng. By F. J. Waldo, M.A., M.D. (Cantab.). 1894.

Multiple Neuritis, with the Development of Unilateral Facial Paralysis late in the Course of the Disease. By J. T. Eskridge, M.D., of Denver, Col. Reprint. 1894.

Transactions of the New Hampshire Medical Society at the One Hundred and Third Anniversary held at Concord, June 18 and 19, 1894. Concord, N. H.: Republican Press Association. 1894.

Surgical Nursing. By Bertha M. Voswinkel, Graduate of Episcopal Hospital, Philadelphia; Nurse in charge of Children's Hospital, Columbus, O. With 111 illustrations. Philadelphia: P. Blakiston, Son & Co. 1895.

Three Cases of Uterus Bicornis Septus; with Report of Operations Performed upon Them. The Technique of Vaginal Hysterectomy. Notes on Movable Kidney and Nephrorrhaphy. By George M. Edebohls, A.M., M.D. Reprints. 1894-95.

Laminectomy for Paraplegia from Pott's Disease; Tenotomy of Contractured Hamstring Tendons of Both Legs; Amputation at the Hip-Joint; Appendicitis; Stone in the Bladder; Suprapubic Lithotomy. By F. C. Schaefer, M.D. Reprint. 1894.

Antisepsis and Antiseptics. By Charles Milton Buchanan, M.D., Professor of Chemistry, Toxicology and Metallurgy, National University, Washington, D. C.; with an Introduction by Professor Augustus C. Bernays. Newark, N. J.: The Terhune Co. 1895.

Further Observations on the Physiological Occurrence of Conical Stump after Amputation in Children. A Brief Note on Some Cases Recently Admitted to the Surgical Service at the New York Cancer Hospital. By Charles A. Powers, M.D. Reprints. 1894.

Transactions of the American Dermatological Association at its Eighteenth Annual Meeting held at the Arlington Hotel, Washington, D. C., May 29, 30, 31 and June 1, 1894, in connection with the Congress of American Physicians and Surgeons. Official Report of the Proceedings. By Charles W. Allen, M.D., Secretary. New York: Geo. L. Goodman & Co. 1894.

Dose Book and Manual of Prescription Writing, with a list of the Official Drugs and Preparations, and also many of the newer Remedies now frequently Used, with their Doses. By E. Q. Thornton, M.D., Ph.G., Demonstrator of Therapeutics, Jefferson Medical College of Philadelphia; Acting Assistant Surgeon, United States Marine-Hospital Service. Philadelphia: W. B. Saunders. 1895.

United States Bureau of Education, Circular of Information, No. 2, 1894. Contributions to American Educational History. Edited by Herbert B. Adams. No. 19. History of Education in Maryland. By Bernard C. Steiner, Ph.D., (J. H. U.), Librarian of the Enoch Pratt Free Library of Baltimore City; Associate in History, Johns Hopkins University. Washington: Government Printing Office. 1894.

The Physicians' Vade Mecum, being a Handbook of Medical and Surgical Reference, with other useful Information and Tables. By Sebastian J. Wimmer, M.A., M.D., Author of Tables and Notes on Human Osteology, etc.; with additions by Frank S. Parsons, M.D., Editor of the Philadelphia *Times and Register*, Member of the American Medical Association, etc. Philadelphia: The Medical Publishing Co. 1894.

Relations of Diseases of the Eye to General Diseases. By Max Knies, M.D., Professor Extraordinary at the University of Freiburg; forming a supplementary volume to every manual and textbook of Practical Medicine and Ophthalmology. Edited by Henry Noyes, A.M., M.D., Professor of Ophthalmology and Otology in Bellevue Hospital Medical College; Executive Surgeon to the New York Eye and Ear Infirmary; recently President of the American Ophthalmological Society, etc. New York: William Wood & Co. 1895.

# Original Articles.

## ASYLUM PHYSICIANS AND COMMITMENT CERTIFICATES.[1]

BY HENRY R. STEDMAN, M.D., BOSTON.

The object of this paper is in general to collect and analyze the provisions of the commitment laws of this and foreign countries with regard to the part played therein by the qualifications required of certifying physicians, and in particular to consider how far the prevailing law on this point in the States of Massachusetts, Connecticut and Vermont falls short in respect to protection of the insane and justice to medical officers of our lunatic hospitals.

The first part of our subject is of considerable interest in itself. We shall find a variety of statutes regarding the examination of the insane for commitment, from those in which no requirement whatever as to medical testimony appears or seems to be thought necessary, to others which contain full and explicit requirements regarding the physician's professional and moral standing, his relationship to the patient and his connection with the hospitals for the insane. It will be seen also that the amount of precaution taken is, in most of the States of the Union, a fairly accurate gauge of their age and the intelligence which comes from increasing experience as to the true needs and interests of their citizens and their charges. Not less noticeable are the exceptions to this rule. For example, certain new States are found to have had wise laws regarding medical examination of the insane for commitment, even while they were territories, while on the other hand, a few old and well-governed States and foreign countries take few or no precautions in this direction. In others, which are among the most advanced communities, the antipodal extreme of overprecaution is reached in prohibiting the very physicians who are conversant with insanity from certifying. The best interests of the insane are thus overlooked and a tendency developed to a reversion in this respect to the primitive conditions of territories. It should be borne in mind, however, that we are discussing only the professional qualifications required of certifying physicians, omitting, as foreign to the purpose of this paper, the many and admirable safeguards in other directions in many of the older States and countries which go far to offset defects in the special legal provisions regarding physicians which are under consideration. We also omit reference to modifications of statutes as to requirements regarding the number of physicians, etc., in the case of emergency and voluntary patients.

For convenience in comparing States and countries we have arranged them in four groups as follows:

### I.

Seven Territories and States in the Union are without any provision for medical examination for commitment of a person to an asylum. These are Colorado, New Mexico, Wyoming, Indian Territory, in which there were no asylums at the time the laws on which this report is based were compiled between ten and fifteen years ago; also Florida, Louisiana and Mississippi. In Louisiana the superintendent of an asylum shall, however, examine all criminal lunatics committed thereto to ascertain if they are feigning. In Mississippi the patient is to be examined by six discreet persons. The trustees and superintendent of an asylum may also admit a patient if they think him insane, although no proceedings in lunacy may have been instituted. But if the sheriff is satisfied that a convict under sentence of death is insane, six physicians, or if they are not attainable six other discreet men are to examine him.

### II.

Nineteen States and territories require examination and certification for this purpose by but one physician. In Georgia and Idaho simply "one physician" is required. In Alabama and Tennessee, "one respectable physician." In Dakota, Iowa, Nebraska and Texas, "a regular practising physician." In Illinois, Kansas and Montana, a jury, one of whom shall be a physician. In Virginia and West Virginia, one; the attending physician examines, the patient's admission to the hospital being subject to the consent of an examining board of the superintendent and trustees of that hospital. Arizona, Washington, Ohio, North Carolina and Arkansas require *one or more* reputable or respectable or regular or practising or licensed practitioner to certify.

Almost all European countries also require that but one physician shall certify. France and Belgium provide in addition that he shall not be connected with the asylum to which the patient is committed. The French code also prohibits a relative of the patient from certifying.

### III.

Canada and sixteen of the United States enact that two physicians shall examine and certify in such cases. Maine, New Hampshire, Rhode Island, New Jersey, Maryland, Nevada and District of Columbia call for two "qualified," "graduated," "respectable" or "reputable" physicians; South Carolina, "two licensed practitioners"; Kentucky and Missouri, "two physicians" simply; California, "two or more graduates in medicine"; Utah, "two practitioners"; Oregon, "two or more competent physicians"; Indiana, the medical attendant of the patient and a selected examiner. Wisconsin requires "two disinterested physicians of good repute for skill and morality." Minnesota prescribes two physicians for convicts; a judge and jury — one of them a physician — for the other classes.

### IV.

Six States, besides requiring two physicians to certify, have made certain specific provisions regarding their medical education and professional experience, one or both, their residence in the State and their position as asylum physicians. They are Connecticut, Massachusetts, Michigan, New York, Pennsylvania and Vermont. Of these in their turn the statutes of Massachusetts, Michigan and Vermont also require of each certifying physician three, and those of Pennsylvania and New York require each five years of practice in the State. Of these Massachusetts and New York also forbid any but graduates of legally organized medical colleges from signing the certificate. Connecticut, Michigan and Pennsylvania make it illegal for physicians to certify if either of them be related by blood or marriage to the patient. The laws of England, Wales and Scotland, which are founded upon the longest experience and by the counsels of the

[1] Read before the New England Psychological Society, December 11, 1894.

ablest jurists and alienists, belong in this category, which represents in most respects the most thorough legislation on this point that could be desired, as well as upon lunacy matters in general.

The laws of this group are as follows:

In New York each of the certifying physicians must be of reputable character, a graduate of an incorporated medical college, a permanent resident of the State, in which he must have practised medicine three years. He shall not be superintendent, proprietor, officer or the regular professional attendant in the asylum to which the patient is committed.

The law of Pennsylvania on this point provides for two or more reputable physicians, residents of the State, who have been in practice five years. They must certify that they are not related by blood or marriage to the patient, nor in any way connected with the hospital in which it is proposed to place the patient.

The statutes of Vermont require for certification for commitment, that the two physicians shall be of unquestionable integrity and skill, residing in the same probate district as the patient, or in the same district as the asylum if the patient does not reside in the State, or if the patient be a convict such physicians may be residents of the probate district in which such place of confinement is situated. Neither physician shall be a member of one firm *nor an officer of an insane asylum in that State.*

The Massachusetts statute requires two physicians, each a graduate of a legally organized medical college and who have practised three years in the State and neither of whom is connected with any hospital or other establishment for the insane.

The law of Michigan is identical with that of New York, and that of Connecticut with that of Massachusetts. Each add, however, the clause above mentioned making relationship between patient and physician a bar to certification by the latter.

In England and Wales two medical certificates are required, one certifying physician being the usual medical attendant if practicable. Neither shall be manager of the institution to which the patient is committed, or interested in payments on account of the patient, or a regular medical attendant of the institution, the husband or wife, father or father-in-law, mother or mother-in-law, son or son-in-law, daughter or daughter-in-law, brother or brother-in-law, sister or sister-in-law, or the partner or assistant of any of the foregoing persons. Neither person signing medical certificates shall bear a similar relationship to each other and a member of the managing committee of the hospital shall not certify; nor a commissioner or authorized inspector.

In Scotland two properly qualified medical practitioners are necessary. Neither shall have immediate or pecuniary interest in the asylum in which the lunatic is placed, nor can a medical officer of any asylum certify a private patient for such asylum except in emergency cases.[2]

The laws of the group last described will, with the exception of the objectionable clause to be considered, be accepted as, in the main, the best-devised means for protecting the interests of the insane, and preventing at the same time illegal commitment of the sane by interested physicians. We have little doubt that those States in which the less numerous and severe regulations are in force regarding certifying physicians, as in Group III, or even perhaps regarding a single physician, as in Group II, are quite free from attempts at illegal commitment. Not only our belief in the integrity of physicians in general, but the fact that so few cases of this nature have come to light, seem to corroborate this view. It is, nevertheless, the part of wisdom to allay, so far as is possible, the suspicion regarding the possibility of such illegal acts which has so long possessed the public mind and which may have had its foundation in actual abuses in the early days when the general ignorance regarding insanity made such practices possible. The opportunity thus afforded interested persons, or relatives it may be, as well as physicians, of controlling the person and property of a sane person, or one not sufficiently insane to be deprived of his liberty, had much to do, especially in England where there have long been a large number of private asylums, with the imposition of the restrictions which we have detailed as well as the various other requirements of the more stringent lunacy codes. But although it is very mortifying to the alienist to feel that the unwritten law of humanity and fair-dealing is not considered binding enough in his case, he ought not to object to any reasonable provisions if they tend to encourage public confidence regarding the protection and care of the sane and the insane in this respect. It is in this spirit that asylum physicians have accepted without remonstrance even those restrictions which forbid them to certify a patient for commitment to any asylum *with which they are connected.* This requirement is, as we have seen, the law in England and Wales, Scotland, France, Belgium, New York, Pennsylvania, Vermont and Massachusetts. When, however, the laws of a State or other government forbid *all physicians who are in any way connected with an asylum certifying a patient to any and all asylums within its borders*, it is the right and duty of such physicians to protest and to use every legitimate means to amend a statute so subversive of their self-respect and of the interests of the insane.

This brings us to the second and more practical portion of our subject, the operation of the clause in the lunacy laws of Massachusetts, Connecticut and Vermont, whereby our asylum physicians and the mass of our insane are subjected to this very injustice. If we examine the provisions in all the other States and countries in the world, above given, we find that these three States alone have this unenviable distinction. The Vermont law is the least sweeping of the three. Hers is to the effect that neither certifying physician shall be an officer of *an* asylum in the State, a law which was adopted when there was but one small lunatic hospital in this, the smallest State in point of population but one — Delaware — in the country. Nevertheless, it must be said that although the Vermont law thus affects but a very few physicians, its injustice as a law is in no degree mitigated. The laws of Massachusetts and Connecticut, the former enacted in 1883 and copied by the latter in 1889, when there were eight large and several small lunatic hospitals within their borders with the usual complement of physicians, provide that no physician *connected with*

[2] The data above given were collected from Stearns's extracts from the laws of the different States and Territories of the United States which relate to the general care of the insane, 1893; Folsom's do, 1884; Tuke's Dictionary of Psychological Medicine, 1892; Reports from her Majesty's Representatives at European Courts and in the United States, etc., on same, 1885; Journal Mental Science, Vol. xxi, p. 236.

*any establishment* for the insane shall certify for commitment to a lunatic hospital. Thus, no asylum alienist, be he ever so able or upright, in whatever part of the globe he may live, is thought fit to certify that a person is insane and should be committed to a Massachusetts hospital for care and treatment. We are not the first to call attention to the matter. A few quiet protests were made by certain superintendents of lunatic hospitals in the State of Massachusetts; but there has been no actual attempt to modify the law. The public and the insane have, to be sure, great reason to be thankful to the framers of the lunacy laws of these States; but in this instance, in their zeal to protect the interests of the insane they have injured the cause of these very unfortunates by depriving such patients (outside the city of Boston, at least) from having expert opinion as to the desirability of their commitment. Moreover, the duty of certifying therefore devolves necessarily upon general physicians, many of whom shrink from giving opinions in such cases, as they recognize their necessary lack of familiarity with the disease and the possible disastrous consequences of a mistaken decision. They do not hesitate to confess comparative ignorance of the subject and their feeling of helplessness before certain patients from whom they are trying to elicit facts sufficient for proper certification. This fact was emphasized by a request made of the writer very recently by the secretary of a large district medical society that he would give its members some practical directions as to the proper methods of examining such persons and obtaining the facts necessary for their certifying them as insane persons. He asked this at the request of a number of physicians who had been often perplexed in such cases. In cases where an asylum physician also is called, their burden may be lightened by consultation, it is true, but the poor cannot afford this, and the State does not recompense the services of three physicians.

The law tends, at the same time, to lower reputable physicians in the eyes of their fellows and the people, by implying a certain distrust of the motives of all medical officers of asylums. It is a satire on Massachusetts justice that impostors and quacks should have thriven in that community until a few months ago, when the bill for regulating the practice of medicine was passed, while for the past twelve or more years its asylum physicians, men of deserved repute as able and self-sacrificing workers in a difficult field, have been restricted in a legitimate line of service and humiliated as well, by unfair legislation. We can understand, as we have said, the sentiment which seeks to prevent physicians from assisting in certification in the commitment of a person to the asylum or establishment with which he is connected. It is even no doubt a welcome protection from criticism to some superintendents, but we are at a loss to find any practical reasons based upon facts why it should be thought necessary to prevent the experienced hospital alienist from committing a patient *to any asylum in any State whatever*, whether he be connected with it or not. This restriction applies also to physicians on the boards of trustees of asylums who, although thought worthy of that honor, may not be trusted to certify for the purpose of commitment by reason of their connection with a hospital for the insane. In the same category are also eight or ten councillors of the Massachusetts Medical Society, among whom is a recent president of that body.

Other conditions which show the absurdity — we can find no other appropriate term — of this discrimination against an asylum physician as certifier for commitment, are the laws which make legal his certificate as to insanity in cases of guardianship of the property of any insane person, whether he be in his charge or not, and that which obliges him to decide as to the mental condition of voluntary patients in lunatic hospitals, as is the case in Massachusetts. Moreover, the enactment, in Massachusetts and Connecticut, which prescribes fine or imprisonment for any physician who wilfully conspires to commit any person who is not insane to a hospital or asylum in the State, demonstrates how superfluous the law is, were there no other reason for its amendment. As Dr. Fisher also forcibly puts it: "the opinion of the asylum superintendent in court may settle questions of damages of large amount or determine the disposition of large fortunes by will; the life or death of an insane criminal may depend on his judgment; but having advised so simple a thing as hospital treatment for some patient, two strange physicians must be called in, at added expense, to re-examine the person before he can be sent to a hospital for treatment."[2]

Finally, there is omitted from the statute all reference to the conditions which are imposed, as we have seen, in several of the most careful codes in this country and abroad regarding the relationship between a physician and the patient to be committed or the fact of pecuniary interest in the place of his commitment, safeguards thought by many to be eminently practical. To pass this by and insert instead the almost petty requirement of which we complain, and which is absent from all other codes, with the two minor exceptions mentioned, is another glaring inconsistency.

Enough argument has, we think, been now brought forward to justify our asylum physicians in demanding an amendment of the law so that it shall conform to that of England, for example, in forbidding certification only to physicians connected with the hospital to which the patient is committed.

Finally, we should bear in mind that the alienist has been the object of enough criticism of late, much of which we know to be unjust. Is our inactivity in tacitly allowing a statute to remain unaltered which lowers in public estimation the asylum physicians of these three States, limits their legitimate field of work and injures the cause of the insane, to be added to our other shortcomings?

## REMARKS ON TWO HUNDRED CASES OF PHTHISIS.[1]

BY GEORGE G. SEARS, M.D.,
*Physician to Out-Patients, Boston City Hospital.*

It is not my intention to go elaborately into the statistics of these cases, most of whom came under observation during my last term of service in the Out-Patient Department of the Boston City Hospital, but to use them chiefly for the discussion of a few points on which medical opinion is not yet unanimous. They comprise 93 women and 107 men, of whom almost the same proportion belongs to the first and second generation of Irish immigrants as that given by the mortality statistics of our Board of Health, 99,

[1] Read before the Clinical Section of the Suffolk District Medical Society, January 16, 1895.

[2] Thirty-second Annual Report of the Board of Directors of Public Institutions of the City of Boston, 1888.

or nearly 50 per cent., belonging to this class. One hundred and thirty-two of the patients were native Americans, of whom 62 were of Irish parentage, while the remainder were natives of a half-dozen different countries, including five Russian Jews, whose presence deserves some comment from the current ideas as to their immunity as a race; when, however, one considers their history since the enforcement of the so-called May Laws of 1882, it is not a matter of surprise that the Russian army examiner, who found no traces of phthisis among the Jewish recruits during the reign of Nicholas and Alexander II, now reject 6.5 per cent. of them for this cause, against 0.4 per cent. among all other Russians, nor that those who sought a refuge in America should occasionally succumb to a disease whose seeds in many cases were sown before they fled. Under such conditions the appearance of consumption among the chosen people cannot be considered a valid argument against the efficacy of the use of Kosher meat and strict obedience to the Mosaic law as important factors in securing the immunity with which they have been credited, but only as showing that there are limits in starvation and sanitary wretchedness to which even the Russian Jew cannot adapt himself.

Contrary to later statistics which have been given regarding the distribution of phthisis according to age, these cases show a marked decrease with advancing years after thirty has been reached, but seventeen, of whom three were women, being over fifty, while but seven were over sixty. Arranged by decades there were 2 in the first (children forming but a small proportion of the clinic), 17 in the second, 79 in the third, 49 in the fourth, 33 in the fifth, 10 in the sixth and 7 in the seventh, with 3 unplaced owing to the silence of the records on this point. It is impossible to give the relative number of phthisical patients compared with the total number in each decade which applied for treatment, but it is safe to say that the proportion given above would not be greatly altered. This is in line with the experience of the writer while a member of the Board of Pension Examining Surgeons, consumption being a very rare cause of disability among the applicants, almost all of whom are middle-aged or old men. Although the energetic pension agent has scoured the country for crippled veterans and has done his best to send before the examiners all in whom the slightest disability could be found or hoped for, yet out of over 1,500, who appeared before the board from August, 1892, to September, 1893, in eleven only, two of whom were young men recently discharged, could a diagnosis of phthisis be made after a most careful examination. In the press of work search for the tubercle bacillus was impossible, so that a certain number of cases, although they must have been few, may have been overlooked owing to the equivocal nature of the signs which are occasionally noticed in the aged. If phthisis is so common a disease in advanced life it is remarkable that so few cases were found among these men, unless the hardships of active service had previously weeded out all those with consumptive tendencies.

Arranged according to both age and sex, 69 per cent. of the women in round numbers were under thirty, while the proportion of men under thirty was almost exactly reversed, 60 per cent. being over it. This is presumably explainable by the fact that in the latter, especially of the class who appear as out-patients, exposure to cold or dust, the abuse of alcohol, etc., are influences which are operative through life, while in the former two potent factors in the causation of the disease, pregnancy and lactation, become less and less active after the age of thirty, till they finally cease. No greater susceptibility of young Irish women than of those of other nationalities could be determined.

On the two points in the natural history of the disease of greatest interest both to the profession and the community, its transmissibility by heredity and contagion, however carefully cases may be analyzed, statistics can throw but little light, and in the present state of the question may even prove misleading. The diversity of professional opinion, however, seems very largely a matter of definition. Since Koch's discovery of the tubercle bacillus some modification of what is meant by heredity in this connection has been necessary, since, although the possibility of its direct transmission from parent to offspring has been proved by six or seven well authenticated cases of prenatal tuberculosis, and suggested in a good many more, it is generally acknowledged to be a very rare event and inadequate to explain the family taint so frequently noticed. Laboratory experiments would seem to prove that the virulence of the tubercle bacillus is practically a constant quantity; and yet, although autopsies show that every third or fourth person whom one meets is somewhere tubercular, and although the bacilli themselves are so generally distributed, and often in such numbers that their actual presence can be demonstrated, only about one-seventh of all deaths result from this cause. In other words, although exposure to an ever-active germ is nearly constant, only about one-third of the population become infected, and in fully half of these the disease falls upon such infertile soil that its course is checked oftentimes before giving rise to any recognizable symptoms, while of those who die most possess sufficient resisting power to keep it localized and prevent its progress except in the most chronic manner. In comparison with many other animals, man cannot therefore be considered as especially susceptible; infection, when it occurs, being due to a lessened power of resistance in the individual, which might well be transmitted through many generations of a family and show itself in the narrow chest, the feeble muscles and transparent skin, which we associate with the phthisical habit, or in some more subtle and unrecognizable change, which Gärtner suggests may be chemical or biochemical. Even if it could be proved, as Wyssokowicz says, that the "tubercle germs could not be hereditarily transmitted, no reason could be found therein why healthy children should always come from phthisical parents. On the contrary, this result should no more be expected than that juicy fruit should grow on a gnarled and stunted tree." In the present series of cases the hereditary taint, as shown by the appearance of the disease in several members of a family, was present in 81, or about forty per cent., in some of whom it may possibly have been transmitted from one to the other by contagion, but in most the second patient had been so long away from home or so many years had elapsed between the death of the first and the development of the second case, that any connection between them seemed extremely unlikely.

In view of the many difficulties which surround the effort to prove the dependence of one case upon another, it is not surprising that careful inquiry into the details

of the histories of these patients should have failed to give any satisfactory results. Although in 22 instances, 15 women and 7 men, the second case in a family or household began to show symptoms during the lifetime of the first or shortly after his death, in only one was such a connection sufficiently marked to deserve notice. This occurred in a professional gambler, thirty-eight years old, of good family history. Three years ago he had most devotedly nursed his mistress, who was ill with the disease, through the latter months of her illness. About four weeks before her death he had a severe hemorrhage and has since suffered from cough and dyspnea with some loss of weight. At the time of examination there were well-marked signs of phthisical consolidation in the left lung with an explosion of râles after cough in the right apex.

So far as the necessity for adopting preventive measures against the spread of the disease is concerned, it is of little importance whether contagion in a particular instance can be proved or not. In the present state of our knowledge regarding the rôle which the tubercle bacillus plays in the causation of consumption, it is inconceivable that it should arise independently of some previous case in man or animal, while at the same time it is almost equally improbable that a single exposure, as in measles or scarlet fever, should be sufficient to overcome the patient. Nor is it necessary to prove the latter in order to show its contagious character, since the tubercle bacillus is able to bivouac within the body and wait for reinforcements before beginning an active campaign. A slow process of infection, an incremental infection, is thus possible, and it is not improbable that a patient finally surrenders to an army which has been recruited from many sources. Whether the contagious nature of phthisis is as great as it is sometimes claimed, or whether as Powell states, it is practically impossible in conditions of human association that the necessary degree of concentration be reached to induce tuberculosis in a healthy person, it is certain that, apart from the food-supply, whose importance as a possible source of infection it is difficult to estimate, effective methods of limiting the disease are theoretically found in isolating the patient, in destroying the bacilli at their point of origin, in improving the general health of the individual up to the point of non-susceptibility, or in limiting the range of activity of the bacilli by better hygienic and sanitary conditions. Although greater precision in diagnosis has undoubtedly contributed to the gradual diminution in the death-rate from phthisis which has been noticed during the past ten years, improved hygienic and sanitary conditions must be considered a most important factor in producing this result, more important even than the diffusion among the masses, as some enthusiasts have claimed, of the knowledge of the bacterial origin of the disease and of the necessity of combating its spread by their destruction, unless the lower classes of other places have shown a greater aptitude for assimilating such knowledge than has been noticed in our out-patient clinic.

What has already been accomplished by such measures gives great encouragement for further efforts in the same line, and though we can hope by their aid only to limit and not prevent the dissemination of tuberculosis, they have the merit of being more practical than the more radical methods proposed, since they can be more readily enforced by our health boards, and do not add to the suffering of the patient by branding him as an outcast. It is difficult to exaggerate the attitude of the so-called intelligent part of the community toward patients with scarlet fever or diphtheria and their families. I speak from personal experience in saying that social ostracism could scarcely be made more complete, and I know of one family, in which several cases recurred at intervals of a few months, which was finally forced to move into another house in order to enjoy the privilege of visits from their nearest relatives. Ostracism can be borne if it lasts but a few weeks, and is unquestionably useful in limiting the spread of a disease, but continuing for years it would be intolerable. It is scarcely probable that the demoralization of the public in the latter case would be as complete, but the change in popular opinion toward other infectious diseases within ten years has been so marked that it suggests a distinct danger in the case of phthisis which should be risked only if it could be offset by a corresponding amount of good not obtainable in other ways, conclusive evidence of which is as yet entirely wanting. Dr. Knight,[1] in discussing the question of the isolation of phthisical patients, and the compulsory notification and registration of them and of their houses, says in a paper on the prevention of tuberculosis that "leaving the whole matter in the hands of the family doctor both in regard to the amount of information to be given and what precautions shall be taken, cannot be as efficacious as if this was done by an officer of the board of health. Unless the family physician thoroughly believed and was personally interested, it would not be thoroughly done." To such a statement in itself no objection can be made. Neglect to give specific instructions, as he says, is almost invariably the result of indifference, but the question may fairly be asked if this may not be better than the active hostility toward compulsory notification and registration felt by a large number, possibly a majority of physicians, who could see in them but a useless annoyance to the patient, and a probable source of pecuniary loss, and who would be tempted under such circumstances with little violation of their consciences to conceal from the patient and his family the nature of his trouble. Precautions which might otherwise be taken might thus be neglected through ignorance. No harm, however, but only good can result from educating the community up to a knowledge of the nature of consumption and of the necessary preventive measures, provided it can be done without sensationalism.

A step in the right direction has been taken by our Board of Health in issuing its circulars, and the example could profitably be followed by all our out-patient departments and dispensaries. The following instructions which are somewhat fuller than those of the Board of Health, have been prepared for distribution among the Boston City Hospital out-patients. They are given now to almost every patient as soon as a diagnosis is certain, since it has seemed that, especially in this class, the advantages gained by the more active co-operation of the patient who realizes the serious character of his disease, were greater than the disadvantages, in the way of discouragement, which a knowledge of the nature of his affection in the early stages might entail. An effort has been made to avoid all directions which might excite unnecessary alarm and yet make them sufficiently strenuous to be of practical value. They have been received by the

[1] International Medical Magazine, July, 1894.

patients apparently in the spirit in which they were given, and while it is impossible to say how far they have been followed, they do not seem to have increased the difficulties of the patient by alarming his friends as to any danger which they may run by associating with him. The circular runs as follows:

(1) Consumption is a contagious disease, but the breath of consumptives is not directly infectious.

(2) The seeds of the disease are found in the phlegm or spittle which is coughed up, but it is not a source of danger till it has become dry.

(3) Do not, therefore, spit upon the streets or upon the floor of your house or shop.

(4) In-doors use a special spit-cup which either contains water or is lined with paper. The cup must be often emptied into the pan of the water-closet or into a bright fire, never anywhere else, and then washed out with boiling water.

(5) Out-doors use a bit of rag or paper which should be burned as soon as possible.

(6) Handkerchiefs should never be used for the phlegm; if used at all they must be boiled for half an hour.

(7) Keep your room clean; use a damp cloth for dusting.

(8) Throw the windows wide open when you leave your room; at night sleep with the windows somewhat open from the top.

(9) Consumptive patients should sleep alone.

(10) Consumptive mothers should not nurse their children.

Of the causes to which the patients ascribed their illness, exposure, "catching cold," naturally came first with 57 cases. The inhalation of dust was supposed to be responsible for 15, grippe 13, rapidly succeeding pregnancies 7, injury 3, and pneumonia 3. In 8 the first symptom noticed was hemorrhage, more or less severe. There was a history of malaria in 3 cases, and of the abuse of alcohol in 10; 19 had had pleurisy from a few months to a few years before, 15 however, had had pneumonia. Two had suffered previously from lupus of the face and one from Pott's disease. Three had had syphilis, one year, fifteen years, and twenty-six years ago respectively. Among the complications there were found 6 cases in which the cervical glands were affected, apparently before the development of the pulmonary trouble, 4 had fistula in ano, and 2 valvular cardiac disease. One case was complicated by patches of tubercular caries on sternum, ribs and ulna.

Many of the cases were seen for the first time after the disease was considerably advanced, so that it was often impossible to tell where it originated, but those in which one lung only was attacked showed a marked predominance of the right side, 59 to 32, in 47 the disease being confined to the right apex, and in 28 to the left.

Owing to the very incomplete condition of the records as well as the short time during which many of these cases were under observation, the results of treatment can only be given in the form of an impression, which is, however, less liable to be wrong in out-patient practice than among other classes of patients, since there is usually but one factor to be estimated. In private or hospital practice when it is possible to modify the diet and general manner of life, doubt always arises as to whether improvement, should it take place, is to be credited to this or to the drugs prescribed, while among out-patients such modification is rarely possible and then usually but to a limited extent. It is of little use to order a special diet to those who are already a drain upon a family struggling for the bare necessities of life, or to recommend an abundance of fresh air to those who fear a draught more than death, or to give special directions as to exercise where intelligence is lacking to appreciate its value. Drugs, however, are usually conscientiously taken, so that whatever change for the better takes place can with a certain amount of confidence be ascribed to them. This limitation of one's resources makes the treatment of such patients at best discouraging work, yet it has seemed to me in watching the progress of these cases, that a larger proportion of them improved than previous experience had led me to expect, while a cure, as shown by the disappearance of all signs and symptoms, occurred in a few instances. Routine treatment, when the prognosis was not absolutely fatal, consisted in the administration of guiacol (occasionally creasote) in doses rarely exceeding five minims three times a day, together with arsenic and Merck's digitalin. In a few cases the dose of guiacol was gradually increased to fifteen or twenty drops, but no advantage could be seen in the larger amount. Except in one or two cases, where it excited some digestive disturbance which disappeared with a reduction in the dose, patients took it without trouble, almost the only complaint ever made being of the somewhat acrid taste and the persistent odor of the breath, of which they were themselves very conscious. The most marked effects for good were seen in the improvement in the general well-being of the patient, and were shown by a gain in appetite and weight, and a decrease in the cough, even in many where the physical signs remained stationary or even seemed to be advancing.

## TUBERCULOSIS AMONG OUR NEAT CATTLE.[1]

BY DR. F. H. OSGOOD.

Tuberculosis is a contagious and infectious disease so widely disseminated, so insidious in attack, and so fatal in results, that it is, no doubt, the most important disease which we are called upon to combat. Not only does it cause one-seventh of the deaths of mankind, but it is the most widely distributed and disastrous disease among our cattle. Since the discovery, a dozen years ago, of the bacillus tuberculosis, and the demonstration of the identity of the disease in man and the lower animals, a great interest has been manifested in the question of the meat- and milk-supply in our large cities. This interest has given rise to the establishment of an inspection service, which, notwithstanding its necessarily superficial character, has revealed many startling facts respecting the prevalence of tuberculosis among our milch cows and beef cattle; so that at the present time there is little or no question concerning its quite general prevalence.

Accurate statistics as to its extent are not yet attainable, but the abattoir reports show in Prussia 6.3 per cent., in Berlin 12 per cent., in Dresden 14.4 per cent., in London 25 per cent., in Midlothian 20 per cent.; in England, during an outbreak of contagious pleuro-pneumonia, in 1890 and 1891, there were slaughtered, as being infected, or having been exposed, 12,000 animals, all of which were subjected to critical post-mortem examinations, and 12¼ per cent. were found to be tuberculous.

[1] Read before the Suffolk District Medical Society, Section for Clinical Medicine, Pathology and Hygiene, January 16, 1895.

The result of the work at our own quarantine stations at Brighton and Watertown, where every animal is subjected to the tuberculin test, before being allowed entry to the State, show that of the animals being brought there for sale, during the first week, 15 per cent. of them were tubercular; during the second week 12 per cent., during the third week 8 per cent., during the fourth week 4½ per cent., and up to December 15th, in the total examination of 1,700 animals, 6 per cent. were affected with the disease. Animals so tested and found diseased, if they have not been within the borders of the Commonwealth for at least six months are destroyed without compensation.

In our examination of animals in this State, we have found some herds with every animal tuberculous, though kept in the most careful way, many of them apparently in the best of condition. Other herds, under precisely similar surroundings, were entirely free from the disease; but in these cases it could be clearly shown that the animals had been bred upon the premises, and no animals brought from without, during a period of at least nine years. Where, however, there has been an interchange of animals during this period of time, in a large majority of cases there is a variable percentage of disease. In many instances the introduction of infected animals into apparently healthy herds has resulted in the transmission of the disease to a large per cent. of their number. In many expensive herds, kept for private use to insure a pure milk-supply, we have found the disease in startling proportions, frequently as high as 80 or 90 per cent.; the autopsy showing lesions of the worst type in well-nourished animals.

The point has been raised that it is impossible to exterminate contagious disease. In this connection I would point to the fact that the incurable contagious diseases among the lower animals can be combated only by slaughter of infected animals, rendering possible the extermination of the disease which might not be possible in men. It may not be without interest in this connection to speak of the importation of a number of animals, some thirty-four years since, consigned to the "Chenerys," some of which were affected with contagious pleuro-pneumonia. The disease spread among our cattle so rapidly and disastrously, that special legislation was secured, which provided that not only those animals manifesting evidence of the disease should be destroyed, but that also all animals which had been exposed to the contagion. The results were gratifying in the extreme. The disease was thoroughly eradicated at an expense of $60,000, since which time, for a period of about thirty years, there has not been known a case of contagious pleuro-pneumonia in Massachusetts. Some of these animals were sent to New Jersey, but the same methods were not adopted; the policy of that State was to destroy animals which showed evidence of the disease, without destroying those that had been exposed; the disease spread over New Jersey, Pennsylvania, New York, Virginia, and the District of Columbia.

In 1887 it was gaining a foothold in the West, when the United States government took into their hands the extermination of the disease, adopting the methods pursued in Massachusetts, some thirty years before; but so rapidly had it spread that five years were required and many millions of dollars before it was possible to exterminate the disease; since which time, some two years ago, there has not been known a case of contagious pleuro-pneumonia in the United States.

The history of the treatment of this disease in Great Britain, and the immense amount of money that has been expended, only show the wisdom of the policy adopted by Massachusetts so many years ago.

Until 1892, tuberculosis was not considered of enough importance in Massachusetts to receive even passing notice. At this time, however, a bill was passed entitled, "An Act to more effectually prevent the spread of tuberculosis among cattle." Under the provision of this Act an earnest endeavor was made by the Board of Cattle Commissioners to do all in their power toward the suppression of the disease; but the legislature of 1894, realizing more fully the importance of the subject, enlarged the Commission, increased its powers, and added to the appropriation, making possible the adoption of a new policy, which, it is believed, will prove efficient in accomplishing such end.

Cattle seem especially predisposed to tuberculosis, as has been explained by authors in different ways. It may be that their normal temperature 102° F., is better suited to the growth of the bacillus, as it develops with great rapidity in fowls, whose normal temperature is 107°. Then, too, the health and vigor of cattle is greatly diminished by the conditions under which they are kept, namely, the unsanitary stables, lack of exercise, and the prolonged lactation of the dairy cows, under all the stimulation possible. Their constant breeding throughout their lives, also constitutes a tax upon the system which leaves them in no condition to resist disease to which they are exposed.

In many of our city dairies cattle are tied in the stable from October to April, often remaining for months, without moving out of their stalls, their heads confined in stanchions; and not infrequently their coats are removed by clipping, that they may be able to stand the temperature to which their stables are heated, for the highest production of milk is the only object sought, to attain which, everything else is sacrificed. The ruinous effect of this policy is shown by the great percentage of disease among our dairy cattle, as compared with those that live an out-door life.

The disease may be transmitted by inhalation of the bacillus, by ingestion of the meat or milk of tuberculous animals, and by direct inoculation through an abrasion in the skin. Numberless instances of infection by milk may be quoted, both by experiments on small animals and accidental infection of people using the milk. German, French and American investigators, working independently, found about the same time, that animals using the milk from tuberculous cows rapidly became the victims of the disease. An interesting experiment was made by taking six little pigs about three weeks old. Two were placed in a pen and fed upon cereals; the other four were placed in a separate pen and fed upon the milk of a tuberculous cow. At the end of two months the post-mortem of the cow revealed extensive pulmonary tuberculosis, but no lesions in the mammæ. The pigs were also killed and examined. The grain-fed animals were poor, not having had the flesh-forming food, but they were free from the disease. The milk-fed pigs were fat and hearty, but every one was tuberculous. Hirchberger also cites a precisely similar instance which came to his notice. The owner of a herd, learning of their infection with tuberculosis, discontinued selling

the milk, but used it to feed his hogs. When they went to the slaughter they were found affected with general tuberculosis.

Inoculative experiments are so positive and so frequently quoted that I will not cite them, as you are undoubtedly familiar with many.

The result of feeding experiments upon the lower animals leads us to consider the probable transmission of the disease, especially to children and invalids, their ability to resist the disease being at a minimum. Milk is often their favorite food, and is usually taken in the uncooked state. Direct experiment on man, is, of course, impossible; but no doubt you are all familiar with cases of accidental infection, as quoted by many observers. From these I select two, not that they are of necessity the strongest upon record, but because they are well authenticated, and occurred in the immediate vicinity.

A cow died of general tuberculosis in Providence, R. I., the lungs, most of the abdominal viscera, muscular tissue and udder being tubercular. The milk had been used in the family. In August the baby was taken sick, and died in seven weeks of tubercular meningitis. Post-mortem showed tubercular deposits in the membranes covering the brain, and some in the lungs. Two years later a two-year-old child in the same family died of tubercular bronchitis; and seven years after a nine-year-old boy, "delicate" for years, died of "quick" consumption. So far as is known the family on both sides were rugged and healthy.[2]

In the spring of 1890, Dr. Gage, City Physician of Lowell, Mass., had as a patient an infant which died of tubercular meningitis. Its parents were healthy and the surroundings good. It had never been fed on anything but the milk of a single cow. The cow's milk was microscopically examined, and found to contain the bacilli of tuberculosis. Guinea-pigs inoculated with her milk developed the disease. A second child, fed upon the same milk, was developing similar symptoms to those discovered in the child that died. Dr. Gage could find no way to prevent the sale of the milk, unless he bought and paid for the cow out of his own pocket. So far as he knew, she was still being used for a milk-supply a year later.[3]

Prof. James Law, of Cornell University, calls our attention to another danger which heretofore has rather escaped attention; namely, there is being constantly produced in tuberculous animals the product called tuberculin, varying in quantity with the number and activity of the bacilli present. This is diffused throughout the animal economy, the blood, lymph, and milk all containing it. When introduced into a person or animal having tuberculosis its effect is well known; namely, it excites the bacillus to renewed activity, thus augmenting the disease, and, therefore, although the milk may be absolutely free from bacilli, much harm may be done by this product, since sterilization has upon it no effect whatever. That its effects are not everywhere recognized is no evidence that they are not produced, as Professor Law very well says, "It is the scrutiny, and not the facts, that is wanting." We have not been looking for these facts, and so have not seen them; but that such effects may be produced there seems to be little room to doubt.

[2] Ernst: Report to Massachusetts Society for Promotion of Agriculture, p. 4; also reprint in Hatch, Experiment Station of Massachusetts Agricultural College, and Bulletin No. 8, p. 16.

[3] Ernst: Hearing before Committee on Public Health, Massachusetts Legislature of 1891, publications of Massachusetts Society for Promotion of Agriculture, p. 19.

This matter is certainly worthy of consideration, although it is right for me to state clearly that this view has not, as yet, been generally accepted by the medical profession at large. Tuberculin is not destroyed by sterilization, nor by a temperature of 212° F. If present in the animal when alive, it will certainly be present in its flesh and milk; and those who make use of these infectious substances as food must run a risk of injury. From the results of the post-mortem study, by which we have learned that in large cities at least one-half of the poor population are more or less affected by tuberculosis some time in their lives, it is evident that an equal number of those who make use of the flesh or milk of tuberculous animals are likely to suffer the greatest injury thereby, through the intensification of the tubercular process or the diffusion of the circumscribed disease. If then it be true that the temperature of 212° F. offers nothing in the way of protection, it is evident that a thorough individual inspection of each animal is the only means of accomplishing valuable results; and such inspection must include a careful physical examination together with the application of the tuberculin test.

In view of the prevalence of bovine tuberculosis and the consequent danger to us from such conditions of our food-supply, there is no doubt that its prevention and control are among the most important sanitary problems before us to-day. So slow and insidious is the course of this disease that it may be present for a long time, even for years, the animal apparently in the best of condition.

### DIAGNOSIS.

Up to within a very short time, the only positive means of diagnosis was microscopic examination of, or inoculative experiments with, the nasal vaginal, or mammary secretions whereby the presence of the germ could be demonstrated. These methods could not be put into general application. Physical examination is very difficult and unsatisfactory in a disease which may affect so many organs and tissues. The recognition of the disease in the early stages is almost impossible, because in whatever organ it may be situated, the changes are so slight, that the functions are not seriously interfered with, and consequently no marked symptoms are developed. There are certain anatomical difficulties in the way of making a perfect physical examination of cattle that are not met with in man. In cattle fed for milk or beef, the digestive function is all important, the abdominal organs having been developed by nature and breeding until they encroach upon the thoracic cavity. The first stomach, or rumen, with a capacity of fifty-five gallons, presses forward against the diaphragm, crowding it into the thorax, materially alters the sounds elicited upon percussion over the posterior portion of the lung. This influence is so irregular, and at times so great as to render the results obtained by percussion in this region of but little value. Ausculation is also interfered with by the soft breathing of cattle, by the thick layer of interlobular connective tissue, by the confusing sounds which originate in the rumen, as well as by the thick skin and mass of muscular tissue interposed between the ear and lung. When the tubercular lesions are located in the liver, intestines, mesenteric and mediastinal glands, it is impossible to make a positive diagnosis till after death; but, fortunately, we now have an agent by the use of which the disease can be detected in its early stages. Although Dr. Koch's

endeavors to find a cure for the disease ended in disappointment, the result of his researches led Professor Gutman, of Dorpat, Russia, in 1891, to experiment upon the cattle. He found that inoculation with tuberculin caused in them a characteristic reaction. Since that time tuberculin has been used in many parts of the world with almost uniform satisfaction in the detection of tuberculosis in cattle.

In making the test the temperatures are taken once or twice prior to the inoculation, which is generally made in the evening. About nine hours are usually required before the reaction occurs, though it may be delayed until the eighteenth hour. The temperature is taken every two hours beginning with the ninth hour after inoculation, until about the twentieth. In a typical case the fever ranges from two to five degrees above the normal, increasing regularly to the maximum, and then showing a gradual decline as the tuberculin is eliminated from the system. In conducting the work throughout the State up to December 15th, the Commission have made over 6,000 tests upon cattle, of which 810 were destroyed as tubercular and the post-mortem confirmed the diagnosis in every instance. There have, however, been destroyed 26 animals in which no disease was discovered; 20 of these were killed at the quarantine stations at Brighton and Watertown during the early part of our experience in a practically new field. These apparent mistakes were made, in several instances, owing to the policy adopted by the Commission, namely, while these animals showed no reaction they appeared to us upon physical examination to be tuberculous. We did not dare to put the brand of the Commission upon them as a guarantee that they were free from tuberculosis, although tuberculin had said so. In every one of these cases the animals proved free from disease in spite of their appearances, and the carcasses were sold for beef.

Another condition with which we were confronted was that some of the animals just unloaded from the cars were about to calve, and were, consequently, in an irritable condition. We considered it better to seize them as they were suspicious, and if free from the disease the loss to the State would be less than if we continued them in quarantine for a re-test. Since this time we have gained such experience that our markings have been almost absolutely correct.

The government stations and live-stock commissions of this country, Canada, Great Britain and Europe, are all agreed that tuberculin is a reliable agent for the detection of tuberculosis in cattle, and from our own experience we are satisfied to base our future work upon its accuracy as a diagnostic agent.

## THE FLAXSEED-MEAL POULTICE AS A STERILE DRESSING.[1]

BY R. W. LOVETT, M.D.

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FOR an indefinitely long time the flaxseed-meal poultice held its place as an invaluable surgical dressing. With the advent of antiseptic surgery, however, it began to be condemned as dirty; and its use has been generally discountenanced by surgical writers, in spite of the fact of its undoubted practical utility in many conditions. The present paper represents an attempt to determine by experiment the question, whether this form of dressing can be considered a sterile one.

As an instance of the practical usefulness of flaxseed-meal poultices the following series of cases may be mentioned. After operations for chronic or acute glandular abscess, the writer has treated cases in two ways. In the first series of cases a wet corrosive dressing, with perhaps iodoform, was at once applied, and so far as possible was kept continuously wet. In the second series of cases a flaxseed-meal poultice was used from the first, and was changed every two or three hours. The cases observed have amounted to some forty in number altogether; and in those treated by the flaxseed poultices the patients suffered less pain, the induration disappeared more quickly, and the progress was in every way more favorable than with the corrosive dressing. To a certain extent the same is true with regard to felons and similar inflammatory conditions.

The following experiments deal with the flaxseed-meal poultice as a dressing considered from a bacteriological standpoint:

(1) In the diphtheria ward some flaxseed-meal was taken from a tin box in which it was kept, and boiling water was poured upon it in the ordinary copper poultice dish. It was kept hot over the gas heater for three minutes, a little hot water being added from time to time. It was then poured out in the usual way, smoothed with a clean knife and covered with a piece of gauze not sterilized. A culture from the inner surface of the poultice, including the gauze, showed it to be absolutely sterile.

(2) In the surgical out-patient dressing-room, where fifty to one hundred wounds are dressed daily. The air in this room is foul on account of the large number of patients always there and on account of the presence of many foul leg-ulcers, etc. A poultice was made in a clean copper tin by pouring boiling water onto the meal. The meal was taken from a tin box kept in the room. The water and meal were mixed with a knife. No precautions were taken to render the poultice sterile. A culture from the meal as it was poured out was sterile.

(3) Ordinary gauze, not sterilized, was placed over the inner surface of the meal. A culture showed a few cocci resembling pus cocci and a few thin bacilli.

(4) The hands were sterilized; the poultice dish was thoroughly cleansed; the meal and water were heated for three minutes over the heater.

Culture from the meal as poured out showed a few long, thick bacilli, probably non-pathogenic.

(5) Sterilized gauze was placed over the inner surface of the meal and wet in the moisture of the poultice. A culture from this was sterile.

(6) A poultice made in the ordinary way without precautions, covered with non-sterilized gauze. A culture from inner surface showed many confluent colonies of whitish color, which microscopically were seen to consist of short, thick bacilli, probably non-pathogenic.

(7) Poultice made as in No. 6, but heated for five minutes at a temperature somewhat above 212° F. A culture showed a few small, whitish colonies seen to consist of micrococci.

(8) December 12th. Men's surgical ward. Poul-

[1] This paper will appear in the Boston City Hospital Reports, Sixth Series.

tice made without precautions; cooked thirty seconds. A culture showed colonies of colon bacilli.

(9) Poultice cooked five minutes; otherwise same as No. 8. A culture showed a few colonies of colon bacilli.

(10) December 13th. Surgical out-patient dressing-room. Poultice made with aseptic precautions; sterile gauze, aseptic hands, etc.; cooked thirty seconds. A culture showed a pure growth of fine bacilli but no pus cocci.

(11) The same as No. 10. Cooked five minutes. A culture showed various bacilli of different forms, but no pus cocci.

(12) Surgical private ward. The poultice was made with all aseptic precautions, and sterilized gauze was used. The meal was boiled for three minutes. A culture showed various organisms present.

(13) The same precautions as in No. 12. The poultice was boiled for ten minutes. A culture showed various organisms.

(14) Women's surgical ward. The meal was boiled for three minutes and poured out. No gauze was used. A culture was sterile.

(15) Out-patient surgical dressing-room. The meal was boiled for three minutes. No gauze was used. A culture showed only one colony of long, thin bacilli.

(16) Surgical out-patient dressing-room. The poultice was made with all aseptic precautions, and the meal was boiled for two minutes. A culture showed long, thin bacilli and cocci.

(17) The poultice was made with all aseptic precautions, and was boiled for five minutes. A culture showed long, thin bacilli and cocci.

These experiments show plainly, that although apparently by chance, the flaxseed-meal poultice may be perfectly sterile, yet in the majority of cases it is not so. Nor can it be rendered sterile by the most scrupulous care in its preparation — as shown, for example, in experiments Nos. 16 and 17. Experiments made in heating the meal for ten minutes or more reduced it to such a gelatinous mass that it was not suitable for surgical use, so that the times given here are as long a period of sterilization as is practicable. The organisms found were in most cases probably non-pathogenic and micrococci were not often present. The place where the poultice was prepared seemed to have little effect on its character, experiments Nos. 12 and 13 having been made under the most favorable conditions, while experiment No. 1 was done in a ward containing many of the foulest cases of diphtheria.

In conclusion, it may be said that the flaxseed-meal poultice is a dressing often sterile, and, if not sterile, containing, as a rule, organisms which are probably not pathogenic; but that it may contain pus cocci. It may be added that no care in its preparation can be relied on to render it sterile.

The writer is indebted to Dr. Stokes of the Pathological Department of the hospital for his kind assistance.

A STATUE TO HELMHOLTZ. — The Emperor of Germany announces that he will contribute 10,000 marks towards the erection of a statue in Berlin to Helmholtz's memory. This is the first contribution by royalty or any distinguished functionary of State to commemorate the achievements of either doctor or scientist, so far as our memory serves us.

## A REPORT ON THE BACTERIOLOGICAL INVESTIGATIONS OF AUTOPSIES.[1]

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(Concluded from No. 13, p. 296.)

### GENERAL INFECTIONS WITH THE STAPHYLOCOCCUS PYOGENES AUREUS.

IN this group we consider those cases in which the bacteriological examination showed a general mono-infection essentially with the staphylococcus pyogenes aureus. One of the cases of diphtheria is included here because the general infection with the staphylococcus seemed to have its origin in an operation wound of the hip, rather than the throat. We also report here more in detail the two cases of endocarditis with staphylococcus septicemia.

CASE I. Infection-atrium a decubitus over the scapula. Edema and hypostatic congestion of lungs. Acute splenic tumor. Arterio-sclerosis of aorta and heart hypertrophy. Staphylococcus pyogenes aureus in spleen, lung, liver and kidney and cerebral meninges. Streptococcus and micrococcus lanceolatus in lung.

CASE II. Ophorectomy for cancer. Metastases in retroperitoneal lymph-glands, omentum and liver. Circumscribed peritonitis. Acute splenic tumor. Chronic diffuse nephritis. Chronic pleuritis with effusion. Hypostatic congestion and edema of lungs. Staphylococcus pyogenes aureus in kidney and blood of heart.

CASE III. Laparotomy for chronic salpingitis, slight peritonitis. Soft spleen. Staphylococcus pyogenes aureus in the peritoneum, spleen and blood of heart.

CASE IV. Operation for congenital dislocation of hip. Abscess about hip-joint extending around ileum, beneath peritoneum, up to the kidney. Secondary abscess in left shoulder, kidney and lung. Diphtheria. Staphylococcus pyogenes aureus in primary abscess, kidney, spleen, liver and lung. Bacillus diphtheriæ in air-passages and lung.

CASE V. General infection with actinomyces. The cultures showed a general infection with staphylococcus pyogenes aureus also. This case is fully reported elsewhere by Dr. Mallory.

CASE VI. Carbuncle of upper lip, metastatic abscesses of lung and kidney. Acute endocarditis, acute splenic tumor, acute hyperplasia of cervical and mesenteric lymph-glands. Acute parenchymatous degeneration of liver and kidneys. Acute degeneration of heart muscle. Staphylococcus pyogenes aureus in carbuncle of lip, kidney, spleen, liver, lung, pericardium and blood of heart.

CASE VII. Pyo-pneumothorax, perforation of diaphragm. Extensive purulent excavation of liver, general peritonitis. Pleural effusion (left side), fatty degeneration of liver. Staphylococcus pyogenes aureus in remnants of lung, liver substance, liver pus and in kidney.

CASE VIII. Acute ulcerative endocarditis, acute pericarditis, infarction of kidney, unresolved pneumonia, empyema, chronic passive congestion. General hypertrophy and dilatation of heart. General

[1] This paper will appear in the Boston City Hospital Reports, Sixth Series.

edema of connective tissue. Staphylococcus pyogenes aureus in heart-lesion, spleen, kidney, kidney infarction, liver and blood of heart.

Case IX. Purulent broncho-pneumonia, empyema of one side, broncho-pneumonia and acute pleuritis of other side. Multiple miliary abscesses in kidney. Staphylococcus pyogenes aureus in lung (purulent broncho-pneumonia), liver and spleen. Kidney abscesses sterile.

Case X. Acute alcoholismus. Congestion of lung and stomach. Acute splenic tumor. Acute parenchymatous degeneration of liver. Staphylococcus pyogenes aureus in lung, liver and kidney. Spleen sterile. Pneumococcus also in lung. A mouse inoculated with an impure culture of the pneumococcus found in the lung died in forty-eight hours with typical encapsulated diplococci in the blood.

### ANOMALOUS GENERAL POLY-INFECTIONS.

Under the head of anomalous general poly-infection we group certain of the cases in which the staphylococcus pyogenes aureus and the streptococcus, or either of these organisms and the micrococcus lanceolatus, have been found together in the same case in some of the internal organs other than in the lung. The poly-infections of this character which have been observed in diphtheria, scarlet fever, erysipelas and puerperal cases are not included in this group, but are considered elsewhere.

Case I. Cirrhosis of liver, chronic interstitial nephritis, dilatation of right ventricle of heart, fibrous myocarditis, general chronic passive congestion, ascites and hydrothorax. Staphylococcus pyogenes aureus in liver and kidney. Streptococcus and staphylococcus pyogenes aureus in spleen. No cultures from lung and heart.

Case II. Extreme hemoglobinemia, hemoglobinuria, icterus, acute splenic tumor, acute fatty degeneration of heart-muscle. Micrococcus lanceolatus and staphylococcus pyogenes aureus in kidney. Micrococcus lanceolatus and streptococcus in lung. Streptococcus in liver. Spleen sterile. Unknown bacteria in blood of femoral vein.

Case III. Meningitis purulenta, secondary to otitis media. Acute splenic tumor. Streptococcus in pus of otitis and in liver. Staphylococcus pyogenes aureus in kidney and lung. Bacillus coli communis in blood of heart. Spleen sterile.

Case IV. Acute lobar pneumonia, acute pleuritis, acute splenic tumor, urinary fistula, abscess of kidney, acute degeneration of kidneys, cirrhosis of liver, arterio-sclerosis of aorta and coronary arteries, atrophy of pancreas. Streptococcus in liver, staphylococcus albus (?) in kidney, large coccus in spleen. Various bacteria in lung.

Case V. Chronic diffuse nephritis, fatty kidney. Edema of brain and lungs, arterio-sclerosis of coronary arteries, mico-purulent bronchitis, acute splenic tumor. Micrococcus lanceolatus and streptococcus in liver. Micrococcus lanceolatus in kidney and spleen. Blood of heart negative. A mouse inoculated with the mixed culture from the liver, died in about forty-eight hours with a streptococcus septicemia, as shown by cultures from the organs.

Case VI. Chronic coxitis with suppurating foci, peritonitis with serious exudation, fibrinous focal pneumonia left lung, subacute nephritis and general amyloid infiltration. Micrococcus lanceolatus in peritoneal exudate, lung and kidney. Streptococcus in liver, spleen, and also in kidney.

Case VII. Bronchiectatic abscesses in lungs, organized pneumonia, subacute pleuritis with pus formation. Acute splenic tumor. Subacute nephritis. Micrococcus lanceolatus and staphylococcus pyogenes aureus in lung, pleural-pus and kidney. Staphylococcus pyogenes aureus in liver. Spleen sterile.

Case VIII. Acute croupous pneumonia, acute fibrinous pleuritis. Acute splenic tumor. Micrococcus lanceolatus and staphylococcus pyogenes aureus in lung, liver, kidney and blood of heart. Micrococcus lanceolatus in pleura, spleen and blood of femoral vein.

### DIPHTHERIA.

Up to the time of the well-known work of Frosch, it was generally believed that the *bacillus diphtheriæ* never invaded the internal organs, but was only to be found in the local inflammatory lesions. In ten out of fifteen autopsies on this disease, this investigator, by using large amounts of material for each culture, could demonstrate the presence of the bacillus either in the blood or in some of the organs. One of the most frequent situations in which it was found was in the pneumonic areas of the lungs. Previous to the work of Frosch but a very few instances are on record in which the bacillus has been met with in these situations. One of these is its occurrence in the spleen in a case reported by Kolisko and Paltauf. In the cervical lymph-glands it has been observed by Schmorl in seven out of ten cases. Recently Booker obtained it in cultures from the spleen, submaxillary gland, lung and blood of the heart in a case of diphtheria, and Kutcher observed it once in the liver and once in the kidney.

In the broncho-pneumonia of diphtheria the presence of the bacillus diphtheriæ was noted by Thaon in 1885, but its occurrence in this common complication of the disease does not seem to have received much attention until the last few years, during which time Johnston found it in a single case, Strelitz in one case out of eight, Flexner in one of two cases, Mosny in one of three, Kutcher in eight out of nine, while the frequency of its occurrence in the cases examined by Frosch, has been already mentioned. Of other bacteria associated with the broncho-pneumonia of diphtheria, the work of Thaon, A. Fränkel, Prudden and Northrup, Mosny and Netter, shows that the streptococcus is to be met with in the great majority of cases. In the two cases reported by Flexner, however, the micrococcus lanceolatus was present, and of the eight cases of Strelitz's, the same organism was present in five, in three of which it was accompanied by the pyogenic cocci.

The occurrence of a poly-infection in certain cases of diphtheria with both the specific bacillus and the streptococcus has been insisted upon by Barbier. This writer holds that there exist two forms of the disease, one a pure mono-infection with the bacillus diphtheriæ, the other a poly-infection with that organism and the streptococcus, or various (doubtful) varieties of it. This conclusion is based mainly upon the results of the bacteriological examination of the throat during life. The post-mortem demonstration, however, of the presence of pyogenic cocci in the internal organs has apparently been made in but a few cases.

Geneserich, in an examination of twenty-five autop-

sies on cases of diphtheria of different clinical types, found among these, four cases of invasion of the blood and internal organs with the streptococcus, while in many cases a general infection with the staphylococcus pyogenes albus was observed.

Bacteriological examinations of the various internal organs have been made in 31 cases of diphtheria, in 5 of which scarlet fever was coincident, and in another case typhoid fever. The bacillus diphtheriæ has been found by culture in the lung in 30 out of 31 cases examined, in the liver in 9 out of 29 cases, in the kidney in 6 out of 31, in the spleen in 5 out of 31, in the blood of the heart in 5 out of 26, in the mesenteric lymph-glands in 7 out of 16, in the cervical lymph-glands in 4 out of 9, in the bronchial lymph-glands in 2 out of 3, in the brain tissue in 2 out of 5 cases, and in the mucous membrane of the stomach in 3 cases. In 21 of the 31 cases, or in nearly 70 per cent., there has been found a more or less general invasion of the internal organs by the pyogenic bacteria, of which the streptococcus was the one most frequently met with.

The streptococcus was present in one or more of the large viscera (exclusive of the lungs), or in the blood of the heart, or in both, in twenty cases. In five of these cases, in addition to the streptococcus in certain organs, the staphylococcus pyogenes aureus or the micrococcus lanceolatus, or both, have been found also in some of the organs of the same case.

Among the streptococcus septicemias was the case of diphtheria and typhoid fever reported by Morse, in which the typhoid bacillus was also found in the various viscera. The only case of pyogenic infection in diphtheria in which the streptococcus was not concerned, but in which the staphylococcus pyogenes aureus was cultivated from all the large viscera, was one with a recent operation wound about the hip-joint, which should be regarded as the probable infection-atrium for the staphylococcus. Because of its unusual features, this case should be excluded from consideration as an ordinary case of poly-infection in diphtheria, as should also be excluded for the same reason, one of the cases of general streptococcus infection, in which the infection-atrium was probably a recent operation-wound in the abdominal wall with abscess formation. Excluding, therefore, these two surgical cases, there still remain nineteen cases of poly-infection in which the infection with the bacillus diphtheriæ was complicated by infection with the pyogenic bacteria.

This fact is of importance in connection with the treatment of diphtheria with antitoxin, for while the antitoxin is certainly capable of neutralizing the effects of the diphtheritic poison under certain conditions, yet there is no evidence that it can neutralize the effects of the pyogenic infection as well. If it is generally true that 60 per cent. of all cases die with a general infection with the pyogenic cocci in addition to the infection with the bacillus diphtheriæ, the failure of the antitoxin to effect a cure in a certain proportion of cases can be readily understood. It will be interesting to observe in future, when the antitoxin treatment has come into general use, whether many cases of pure uncomplicated diphtheria come to autopsy as at present.

Of the thirty-one cases, broncho-pneumonia was present in nineteen. The cultures from the lung in these broncho-pneumonias gave the following results:

The bacillus diphtheriæ (not accompanied by other pathogenic bacteria) in eight cases. The bacillus diphtheriæ and the streptococcus in five cases; the bacillus diphtheriæ, the streptococcus and the staphylococcus pyogenes aureus in two cases; the bacillus diphtheriæ, the streptococcus, the staphyloccus pyogenes aureus and the micrococcus lanceolatus in one case; the bacillus diphtheriæ and the staphylococcus pyogenes aureus in one case; the streptococcus (not accompanied by other pathogenic bacteria) in one case, and the bacillus diphtheriæ, the streptococcus and the micrococcus lanceolatus in one case.

From these results it is apparent that no one organism is to be regarded as the cause of the broncho-pneumonia of diphtheria. In fact, some or all of these species of bacteria above mentioned may be present in the lungs without the occurrence of broncho-pneumonia, as the following results show. Of the twelve cases in which no pneumonic condition was present, the cultures from the lungs in six cases (including two cases of pulmonary infarction) showed the presence of the bacillus diphtheriæ as the only pathogenic organism present, in two cases the bacillus diphtheriæ and the streptococcus, in two cases the bacillus diphtheriæ and the staphylococcus pyogenes aureus, and in two other cases the bacillus diphtheriæ, the streptococcus, the staphylococcus pyogenes aureus and the micrococcus lanceolatus.

Undoubtedly a large portion of the bacteria developing in the cultures from the lung are derived from the smaller bronchi, and not from the lung substance proper.

An interesting case, not included in our cases of diphtheria above analysed, in which the bacillus diphtheriæ was found, may be referred to here. The case was essentially one of broncho-pneumonia in an old man, no other well-marked lesions being made out at the autopsy, although the larynx and trachea were not examined. There were no symptoms during life. The cultures showed the presence of typical forms of the bacillus diphtheriæ in the lung and liver, in addition to various unknown bacteria. The organism, however, both from the lung and liver, was found to have no virulence towards guinea-pigs. This lack of virulence towards guinea-pigs has been occasionally observed in the bacillus diphtheriæ. We have noted it ourselves in a number of instances, even when the bacillus was derived from fatal cases of diphtheria. In addition to this case we have also met with the bacillus diphtheria in the lung in two other cases, in one of which it was found to be typically virulent towards a guinea-pig. In neither of these cases was there any suspicion of diphtheria during life and the air-passages were not examined at the autopsy.

### SCARLET FEVER.

Crooke, in 1885, found micrococci in the spleen and kidneys of 30 cases of scarlet fever; and in the same year Fränkel and Frendenberg found the streptococcus in cultures or sections from the submaxillary glands, the liver, the spleen and kidneys in three cases of the disease. Raskin observed the streptococcus in the purulent lymph-glands and joints, and four times in the blood of the heart in scarlet fever; and Leubartz examined a case with similar results. In the kidneys, in scarlatinal nephritis, Babes obtained constantly the same organism. The occurrence of a streptococcus general infection has also been constantly observed by Kurth at autopsies on scarlet fever.

Autopsies have been performed on 11 cases of scarlet fever, in five of which diphtheria was coincident. A well-marked general infection with the streptococcus was demonstrated in four cases (diphtheria being coincident in two); a general infection with the micrococcus lanceolatus in one case; and in another case a general poly-infection with the micrococcus lanceolatus, and the staphylococcus pyogenes aureus; these bacteria being found in the various organs either separately or together. In still another case, in which diphtheria was coincident, the culture from the spleen showed the presence of the micrococcus lanceolatus and that from the kidney, both the streptococcus and the staphylococcus pyogenes aureus.

In the four remaining cases the cultures from the various organs (exclusive of the lungs) were sterile, or contained various unknown bacteria; and no general pyogenic infection could be demonstrated. It may be mentioned that diphtheria was coincident in but three of the seven cases of general infection with pyogenic cocci. Broncho-pneumonia was observed in nine of the eleven cases. The cultures from the lung in these cases resulted as follows:

The streptococcus was found in four cases (including two cases of coincident diphtheria in which it was associated with the bacillus diphtheriæ); the bacillus diphtheriæ in two cases; the micrococcus lanceolatus in one case; the micrococcus lanceolatus and staphylococcus pyogenes aureus in one case; and in one case a mixture of three of these species of bacteria. It is apparent, therefore, that no one species of bacteria is to be found constantly in the broncho-pneumonia of scarlet fever. This has also been shown to be true of the broncho-pneumonia of diphtheria.

### TYPHOID FEVER.

But nine cases of typhoid fever have come to autopsy. The chief points of interest in our study of these cases may be briefly given as follows: The typhoid bacillus has been found in the spleen in seven of the nine cases. In the two negative cases the failure to find the bacillus may be explained by the fact that both cases had entered the stage of healing. This early disappearance of the typhoid bacillus is interesting. It is worthy of note that in one of these cases (an acute endocarditis) micrococcus lanceolatus was present. In two cases there was a poly-infection with both the typhoid bacillus and the streptococcus, diphtheria being coincident in one of them. As to the distribution of the typhoid bacillus through the organs other than the spleen, our observations are not as complete as could be desired. Our results on this point may be summarized as follows: The typhoid bacillus has been found in the liver in four out of seven cases in which cultures were made from that organ; in the kidney in three out of seven cases; in the blood of the heart in two out of four; in the mesenteric gland in three out of five cases; and in the bile in two out of three cases.

In the identification of the typhoid bacillus and its differentiation from the bacillus coli communis, great care was exercised, the liability of confusing it with that organism being always borne in mind. The typhoid bacillus in these cases was differentiated from the bacillus coli communis by the absence of gas production in its sugar-agar culture, by the appearance of its potato and litmus-milk cultures, by the absence of indol production, by its motility, and by the ease with which its locomotor organs could be stained. Most of these tests were gone through with in every case to make certain the identity of the bacillus.

### BRONCHO-PNEUMONIA AND FOCAL-PNEUMONIA.

The most important and extensive investigations of the bacteriology of the various forms of acute focal inflammations of the lungs are those of Finkler, Netter and Mosny. Finkler, from an examination of 37 cases of broncho-pneumonia and other forms of acute focal-pneumonia, found that various species of bacteria occurred in these processes, but that the streptococcus was most frequently met with in the focal forms other than true broncho-pneumonia.

Netter studied 95 cases of broncho-pneumonia, 53 of which were in adults and 42 in children. Of the 53 cases in adults, 35 were mono-infections in which the micrococcus lanceolatus was found in 15, the streptococcus in 12, the bacillus of Friedlander in 9, and the pyogenic staphylococci in 3; while 14 were poly-infections with two or more of these species of bacteria. Of the 42 cases in children, 25 were mono-infections, in which the micrococcus lanceolatus was found in 10, the streptococcus in 8, pyogenic staphylococci in 5, and the bacillus of Friedlander in 2; while 17 were poly-infections with two or more of these species of bacteria. Netter concludes from his study, that neither in children nor adults is there any relation between the species of bacteria and the type of inflammation in the lung.

Mosny studied 17 cases and found the streptococcus in 11, in five cases accompanied by other bacteria; the micrococcus lanceolatus in four, and the bacillus of Friedlander in one case. Three of Mosny's cases were pseudo-lobar and in these the micrococcus lanceolatus was present.

In the course of this work cultures have been made from the lung in 16 cases in which broncho-pneumonia was present, exclusive of cases of diphtheria and scarlet fever. In eight of these cases the micrococcus lanceolatus was found as the only pathogenic organism present, in two the streptococcus, in three the staphylococcus pyogenes aureus, in one the micrococcus lanceolatus and the streptococcus; and in two only the bacillus coli communis or various unknown bacteria grew in the cultures.

In two cases of atypical pneumonic consolidation the micrococcus lanceolatus and the streptococcus were respectively present.

From these results it is clear that, as in the broncho-pneumonias of diphtheria and scarlet fever, the species of bacteria associated with pneumonia conditions other than the lobar type are subject to great variation.

Of other pathological conditions in the lung, from which cultures have been made, tuberculosis only will be considered. In all of five cases of various types of pulmonary tuberculosis either the streptococcus or the staphylococcus pyogenes aureus, or both, have been found in the diseased lung. From one of these cases the bacillus diphtheriæ was also isolated, and found to be characteristically virulent for a guinea-pig. No examination was made of the throat or trachea at the autopsy, for there was no suspicion of diphtheritic infection.

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A WARNING TO MIDWIVES. — It is reported that a midwife has been committed to trial in England charged with manslaughter, on the ground of having communicated puerperal fever to her patient.

## Clinical Department.

### PERSISTENT ATTEMPTS AT SELF-DESTRUCTION; A REMARKABLE METHOD OF SUICIDE.

BY CHARLES H. MORROW, M.D., GLOUCESTER, MASS.

IN November of the year 1894, I was called to attend A. B., a man who had passed middle life, was unmarried and lived alone. He had for years been troubled with indigestion and was a confirmed pill-taker. He now believed he had heart disease, but after examination I informed him that he had not. He wished me to visit him as often as I considered necessary and I called two days later; during this time he was frequently on the street, and made several social calls. He was noticeably despondent.

In the afternoon, five days after my first visit, responding to a summons, I found my patient in bed. In the early morning of that day he had made an attempt upon his life. I found an incised wound two inches in length, beginning over the apex of the heart, extending towards the sternum, and penetrating the chest near the sternum, the organs contained in the chest being apparently uninjured; a second incised, non-penetrating wound was found just above the one described; there were two incised wounds on the anterior surface of the left forearm near the wrist, but the arteries were not cut. There was a small wound of the skull and its coverings at the vertex in the median line at the point of junction of the coronal and sagittal sutures which he informed me he had made by driving a nail through his skull with a hammer. While penetration of the skull was quite apparent a probe could not now be made to pass through it. A small wound was found near the one described, which had probably been made by a nail, but which had not penetrated the skull.

He informed me that he was tired of life, believed he had water around the heart, and had made an incision for the purpose of letting it out; he also desired to know the exact location of the heart and vital points in the brain. The implements which he had used could not be found. Just after the attempt on his life he had called a woman occupying a portion of the house, who found him sitting in a chair with a basin in which there was considerable blood, which had flowed chiefly from the chest wounds. His clothes had absorbed considerable blood. She observed the head of a nail protruding from the skull, but on returning after a short absence from the room it had disappeared. It would seem that the skull wound had been first made, as it would apparently be impossible to make it when weak from the loss of blood. The end-cutting wire pliers by means of which he had extracted the nail were found. He progressed favorably, and after a few days gave every evidence of recovery. The highest temperature noted was 100.5°. As his condition improved his expressions of dissatisfaction at the failure of his attempt became more pronounced.

On the ninth day after his first efforts at suicide I was informed that the nurse had left him for a short time, and during his absence the patient had arisen, obtained a hammer and nail, and made a second attempt at suicide. The point of entrance of the nail into the brain was the same as before and it was extracted by the nurse with the pliers which the patient had himself used on the former occasion. The nurse stated that the head of the nail was so close to the skull that it was with difficulty he secured sufficient hold upon it to allow its extraction; he also stated that the nail was so tightly held by the bone that a considerable outlay of strength was required for its liberation. The first nail used was now found and identified by the blood which had clung to it. It was the ordinary smooth, round, wire nail so much in use, and measured five inches in length and three-sixteenths of an inch in diameter. The nail used on the second occasion was somewhat larger, and measured five and one-half inches in length and one-fourth of an inch in diameter. The hammer was an ordinary-sized one, having a claw for nail-extraction. The knife used was a fish-cutter's knife; an idea of this knife is obtained if we imagine a six-inch bread-knife with the cutting edge ground out in a uniform curve from the handle to the end of the straight portion of the cutting edge, that is, the end of the knife is as large as formerly, the blade narrowed at the centre.

A rise in temperature followed this second attempt, the highest recorded being 102°. Death occurred on the fifth day, or on the fourteenth day after the first attempt at self-destruction. Power to communicate ideas by speech was lost two days before death; but his mind readily responded, and showed normal understanding until death. Two days previous to death a twitching of the muscles of the right side of the face was noticed, and was soon after apparent in the right arm and hand.

Laceration of the brain and its coverings was demonstrated after death. The course of the nails was downward and backward towards a point one inch to the left of the junction of the longitudinal and lateral sinuses.

## Reports of Societies.

### CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

JOHN L. AMES, M.D., SECRETARY.

REGULAR Meeting, Wednesday, January 16, 1895, DR. G. M. GARLAND in the chair.

DR. G. G. SEARS read a paper entitled,

REMARKS ON TWO HUNDRED CASES OF PHTHISIS.[1]

DR. V. Y. BOWDITCH: Dr. Sears's paper brings up several interesting points for discussion. Certainly, in regard to the point of heredity in consumption, I have been led to adopt the belief that it is not transmission of a tuberculous condition from parent to child, but that a vitiated system can be handed down which makes a fruitful soil for the germ to grow in.

In reference to our methods of diminishing the liability of infection from one case to another and the action of boards of health, it has always seemed to me that a middle ground is the safer. I had the strongest feeling against the action taken by some of the boards of health at first who would almost ostracize the poor patient the instant the bacillus was found in his sputa—it seems to me a cruel and unnecessary position to take. I do believe that certain measures, especially those adopted by the Massachusetts Board of Health and the City Board of Health, are capable of doing a vast amount of good. I have

[1] See page 323 of the Journal.

been very much surprised to find how amongst the poorer classes there seems to be already a knowledge of how to dispose of the sputa of tuberculous patients. Several times in questioning what was done with the sputa I have asked whether handkerchiefs were used, and they have said, "No, we use a piece of paper and throw it into the fire." It is a hopeful sign, I think, that people are awake to the fact that dried sputum is a danger element, and that its destruction by fire is the safest method.

It seems to me that Dr. Sears's suggestions in regard to out-patients are excellent. There is nothing in them one would take fright at. In the City Hospital we have lately adopted a new method, or, at least, it is already on the boards to be adopted, recommended by the medical staff to the superintendent who is to put it in force, and that is, instead of using the ordinary china spit-cups, a certain kind of paper spit-cup is used at the bedside. These cups when not too full are taken by the nurses, piled up together and put in a cheap cardboard box prepared for the purpose, with a rubber strap placed around it, then put into an iron rack and carried down to the fire-room. There the boxes are thrown immediately into the fire. That diminishes the possibility of infection from cuts on the hands, etc., among nurses who complain that in order to keep the china cups clean they have to put their fingers in and rub. Dr. White tells us that he has had cases of tuberculous trouble in nurses originating in the hands.

DR. VICKERY: I have enjoyed listening to the paper very much, and been instructed by it. This question about the attitude that the healthy part of the community should hold toward persons afflicted with contagious diseases is a difficult matter. Look at it from another side, which was brought to my mind by one of the doctors in this city who goes about visiting the families of those school-children who have scarlet fever and diphtheria. Perhaps in the whole city there are fifteen or more cases reported among school children daily. Now, supposing instead of being diphtheria or scarlet fever, it was small-pox, just think what a stir there would be, and how people would like to move out of Boston for the sake of their health; and yet unless very recent methods are going to change the prognosis, diphtheria is fully as fatal a disease as small-pox would be among children who had been well vaccinated. I think it is a very good thing to be frightened if you are frightened at the right things; and I am frightened at diphtheria, for instance, and scarlet fever: it is a bad thing to have in your house. A family will nurse one child, isolate him, suffer all sorts of privations, send the other children off and have everything repainted and repapered, and the other children come back and one of them comes down with scarlet fever in that clean house. This brings me to one point about which I think we all agree, and that is, after a consumptive has died, his home should be visited by the board of health and cleaned up. It seems to me that would not hurt anybody, and just the same as soldiers march from a funeral a little faster than they went, the family might feel they had taken a new start and were not going to have any more such things among them.

About the treatment, my experience confirms somewhat what Dr. Sears said about guiacol. When creasote was first recommended I tried it conscientiously, and found that almost invariably patients seemed to be worse for it. They got upset, and a good many of them never came again. Now I give a very small dose of it, and it is really surprising how much good it seems to do. The benefit seems to be primarily a stimulation of appetite and digestion. The formula I have employed (but did not originate) is as follows:

| | | |
|---|---|---|
| Creasoti fagi | | gtt. xxiv |
| Tr. gentian. comp. | | ʒi |
| Spe. vini rectificati | | ʒss |
| Syr. sarsaparill. comp. | | ʒi |
| Vini Xerici q. s. *ad* | | ʒiv M. |

Sig. One teaspoonful in water before meals.

The combination is much like Fraentzel's.

DR. PRESCOTT: I would like to call the attention of the Section to a method of treatment of consumption brought to my notice last September by Dr. Wood of the United States army. It is a method published by Dr. Carossa, in the *Centralblatt für Bacteriologie* for last June, and consists in the continuous inhalation of the essence of peppermint and the administration of peppermint and creasote internally combined with hyperalimentation and all the wine that an Italian soldier can take. Dr. Carossa reported forty-four cases treated by this method. Four cases were of general tuberculosis and all died: one case had a severe hemorrhage, and died while under treatment: one case died in sixteen months, as it was said from re-infection, having gone back to the same hovel where she had lived previously, and had contaminated the room by spitting all over the floor and walls. All the rest recovered; thirty-two were discharged absolutely cured, and the rest were benefited or discharged nearly cured. Twenty cases were in the second stage, two in the third stage, and the rest were in the first stage.

It was drawn to my attention last September, and I immediately put a patient under treatment. Since then I have had ten cases in all, three of them having been benefited to no great extent; they are no worse than last September; the number of bacilli is no greater; and some of the symptoms, like cough, the amount of expectoration and the night-sweats, are improved, but further than that there has been no improvement. One who went to New Mexico, and was in New Mexico sometime before she began the peppermint treatment, without any great improvement, started in upon it there, and has gained eight pounds in three or four weeks, is very much better in every way, so much so that she feels very much encouraged, and her husband does too. She had had amenorrhea nearly a year, but the courses returned on December 28th, and she now has only a very slight cough. I have not had a chance to examine her sputum, but everything else points to recovery. That, of course, cannot be attributed wholly to treatment, but at least the treatment has benefited her. A doctor who went there in the last stages, and who had some peppermint given him by my patient, was so much benefited, although there was no hope of recovery, that he wrote saying, if he lived a thousand years he could not thank her enough for the relief to the cough and dyspnea and night-sweats he had received. The other six cases were men in the Reformatory at Concord, Mass., whom I saw through the kindness of Dr. G. E. Titcomb, the physician in charge. Every one has improved, and gained in weight from two to eleven and-a-half pounds. Their expectoration has diminished so much that it is now practically nothing (I have not been able to get any from them for a month

to examine, and the last time I examined it the number of tubercle bacilli was very much diminished). Two have left the institution, one without symptoms of any sort, and he has been lost sight of. The other has gained steadily from the time he started treatment, and he is still under treatment. The other four have given up treatment as being practically well, have gone back to work, and with such improvement that you cannot get any sputa to examine for bacilli. The number of cases is very small. I speak of them with a good deal of diffidence, simply wishing to call attention to the method of treatment and to report what improvement has been obtained.

The method I used was this: A piece of cloth about ten centimetres long and five wide is folded upon itself so as to make a piece one and a half centimetres wide and five long, and this is held to the nose by a string or elastic passed around the head, and is to be worn continuously. Upon that four or five drops of the essence of peppermint are put every three or four hours, and the patient wears it except when eating. The doctor impresses upon the patient the necessity of every twenty to thirty minutes taking deep breaths and holding the inspired air so that the peppermint can come in contact with the bacilli in the lungs. Peppermint and creasote are given internally in a mixture made of eight parts each of the spirit of peppermint and pure creasote, 20 parts of chloroform, 225 parts of glycerine, and 550 parts of alcohol.

I do not know what kind of stomachs the Italian soldiers have; but the doctor says he gives a tablespoonful of that mixture every four hours. I have never found anybody who could take it that way, and most of them cannot take it any way. Half a teaspoonful every four hours is all I have been able to give.

The first patient, I think, was a young girl of sixteen, who took it straight. Everybody else wants to take it in as much water as they can get. Dr. Carossa says it can be put into a tumbler of water and sipped if the stomach does not retain it readily. Then in addition to the peppermint and the creasote taken into the stomach and peppermint inhaled, he gives 400 c. c. of wine in the twenty-four hours. But the first symptom to disappear are the night-sweats, and every patient who has had night-sweats has had them disappear inside of the first two weeks; and within three weeks the cough has diminished very much, as well as the amount of expectoration.

DR. BOWDITCH: I have used this method, and have used the oil of peppermint. If one does use that he has to be careful, as the oils vary very much in quality. Some are extremely irritating and some extremely nauseating.

DR. GARLAND: I met a doctor from Virginia a few years ago, who used the oil of peppermint for coryza. He told the patient to moisten the nostrils first with water and then with the oil of peppermint directly on the nostrils, with a great deal of benefit by clearing the head where the nostrils were closed.

I should like to ask whether in private practice the patients object to this thing while going about. Of course, in the Concord prison they can wear it all day; but what advice would Dr. Prescott give to a private patient about town as regards the number of hours he should use this apparatus?

DR. BOWDITCH: I think I have tried it in six or seven cases. The most of these were at the Sharon Sanitarium, and there was no difficulty in controlling them. Another case was a lady in Milton. She wore it day and night, and made no objection to it. One other case was a silly girl, who objected to it at the outset, and I discontinued it. My experience has been negative as far as results at the sanitarium have been concerned. In the lady at Milton, there was an astonishing change in her cough and night-sweats, and after six or eight weeks she was decidedly better. It seemed something more than coincidence, but finally she became nauseated with any attempt to use it. She is now going rapidly down hill. In strict justice to the method proposed, however, I ought to add that the internal treatment with creasote and peppermint was not used at the same time.

DR. PRESCOTT: I have only had four private patients, and one of these was a young girl who wore it around the house, and did not go out except to ride or to come up to see me in the car, and then she made a cone of her handkerchief instead of wearing the cloth. The second one was a woman of about forty. She made a cone which she preferred to the cloth. This she put over the nose and kept saturated. She liked it very much. I think she would have improved more, but she had an attack of acute endocarditis. But as far as the lungs were concerned she was no worse. The third patient has worn it just the same way; but she doesn't go visiting at all, and I don't suppose they could. I think, too, from reading Dr. Carossa's method, that the best results were obtained by keeping the patient in bed until after the disappearance of the signs; and I suppose one reason of that was because they could keep them more under surveillance.

DR. ABBOTT: I should like to ask Dr. Osgood how he would explain this fact: Some thirty years or more ago Dr. Bowditch made a statement which marked an advance in our knowledge of tuberculosis beyond anything known up to that time as to the conditions under which it prevailed. In that paper, published in 1861 or 1862, he showed that in certain parts of the State there was much more tuberculosis than in others; and that in the sea-coast counties of Barnstable and Nantucket tuberculosis in human beings was relatively greater than in any other places in the State, Nantucket having the highest ratio; and yet I understand that the examinations of cattle in Nantucket have shown the least tuberculosis of any place thus far, only five or six in six hundred. Now, there is a better opportunity in that island to make an observation than in any other place in the State. It is an isolated community, with no migration to that place at all. They use, undoubtedly, their entire milk-supply from those animals. Probably they use a large part of the beef of those animals. If there is a close connection between the consumption of the products of tuberculous cattle and the prevalence of tuberculosis among human beings, should we not expect to find upon that island corresponding ratios in these two sets of observations?

DR. F. H. OSGOOD presented a paper on

TUBERCULOSIS AMONG OUR NEAT CATTLE.[2]

DR. ABBOTT: I think the point is correct that it may be one factor, but by no means the greatest. In reference to whether we know what kind of milk our milkmen carry. In the method in which milk is distributed in Boston it would be impossible except in a very few instances. The milk is brought in by large

[2] See page 326 of the Journal.

contractors who distribute it, and sometimes it is put into mixers holding from one hundred to several hundred gallons each, so that the "one can" business and "one-cow's milk" is often a mere hypothesis.

The PRESIDENT: I wish to express my own gratification and appreciation of the value of this paper, and I imagine that I convey the sentiments of the gentlemen in thanking Dr. Osgood for the pleasure and the profitable evening he has given us.

## Recent Literature.

*A Practical Treatise on Orthopedic Surgery.* By JAMES K. YOUNG, M.D. Philadelphia: Lea Brothers. 1894.

The author states that the book is designed as a guide to students and practitioners, and he has judged well of the necessary requirements for a scope of such a presentation of the subject. The work is a good representation of the general opinions of to-day in orthopedic surgery; and in offering this the author has given full attention to recent literature in the various departments of the subject. The text is well written, and the illustrations, which are numerous, are good.

Portions devoted to the description of disease and to etiology and diagnosis are particularly well presented, and distinctions in diagnosis in many instances are made clear by comparative tables; but it would have added more to the value of the work to have given in general more space to the discussion in greater detail of questions of treatment in the matter of application of apparatus, which is so essential to the successful treatment of this class of cases. It is to be regretted that the various methods employed in the treatment of hip-disease should not have been considered more with reference to the objects which they are designed to accomplish and the education which leads to their choice rather than as schools of treatment that would be inferred by the names of American and English methods.

The presentation of the subject of etiology and development of lateral curvature is particularly good and deserves mention; but the question of the treatment seems to be rather slighted. In view of the prominence and interest which is now being displayed in this department, and also the need of putting this on a scientific basis, it seems an omission to dismiss the question without most thorough consideration, especially that of treatment of resistant cases which require more than simple gymnastic measures or retentive appliance.

The portions devoted to the neurological side deserve special mention, not only because it is rare to find this so carefully treated in works of this kind, but from its own worth. The author evidently recognizes the advantage to the orthopedic surgeon of a thorough understanding of this branch, both for itself and for its aid in general orthopedics, and to have this presented so well from the orthopedic side gives it special value.

One is impressed with the thoroughness which Dr. Young has shown throughout the work, and not the least, in his attention to recent literature and presenting recent advances in many departments. To present a subject in a brief form always involves danger in the omission of important facts, but the author is here to be commended on his judgment in selection.

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## REPORT OF THE ST. LAWRENCE HOSPITAL FOR THE INSANE.

THE managers of the St. Lawrence Insane Hospital, Ogdensburg, N. Y., have just issued their eighth report. The hospital seems well equipped with buildings, surgical and medical outfits, libraries, laboratories, etc., and the reports of the medical directors show a commendable zeal to improve the large opportunities there offered. The number of patients on September 30, 1894, was 1,100. The average *per capita* cost for maintenance, including officers' salaries and clothing, was four dollars and thirty cents weekly.

Under the head of "Medical Science," Dr. Wise, the medical superintendent, speaks somewhat enthusiastically of the work of his associates, whose aim is to carry into effect these objects: "the application of the most advanced and enlightened views in relation to the treatment of the insane; minute and precise clinical observation of cases; the acceptance of every opportunity afforded towards the solution of problems connected with the causation and pathology of insanity.

Under the head of "Laboratory Methods," Dr. Robert G. Cook, resident physician, describes the processes employed of hardening, section-cutting, staining and mounting of morbid specimens of nerve and brain tissue. He has given several colored plates illustrative of pathological changes in the brains of subjects who had died at the hospital.

Dr. J. M. Mosher presents specimens of the clinical records and bedside notes of this hospital. A blood chart has recently been added to the series of blanks in daily use.

The chapter by Dr. J. M. Mosher on "The Relations of Physical Disease and Mental Disorder" is of especial interest and value. The conclusion is reached, "that the differences and distinctions between affections of the mind and body are more apparent than real, and that success in the treatment of disease of the former is attained on purely medical methods no

less than in the treatment of affections of any other part of the organism. Mental disease as an entity, whether its manifestations be mania or melancholia, exhilaration or depression, disorder of the will or the emotions, yields to the preponderating physical depravity and remains only as a complicating group of symptoms, often perplexing and obscure, but subordinate."

The writer agrees with Dr. Edward Cowles (Shattuck Lecture, 1891), in teaching that in the genesis of insanity, the departure from health is initiated by a train of neurasthenic symptoms, of which the earliest is the development of pathological from physiological fatigue. He affirms that neurasthenia, as preeminently the type of perverted nervous function, has the closest relationship to insanity, of which, in fact, it is a well-nigh universal complication. "In chronic cases long past the initial neurasthenic stage, its impress remains in the enfeebled circulation, intestinal torpor, dilated pupils, retarded and benumbed sensations, motor debility and inactive reflexes." The sequence and relations of the neurasthenic manifestations have been shown to be, on the physical side, lack of control of nerve-force, failure of co-ordination, and increased excitability with quick exhaustion; the earliest mental indication is weakness of the faculty of attention, alteration of the bodily feelings, producing a sense of ill-being and of effort. So far the symptoms are those of normal tire amenable to the relief obtained by usual processes of recuperation. The morbid state follows the grafting upon these, symptoms of introspection, retrospection, apprehension, worry and hypochondria, irritability and restlessness, from which the change to suspicion and delusion is but a step.[1]

Dr. Mosher thinks that for these cases, rest is the prime indication. When this may be best secured by withdrawal from sources of irritation, and the novelties of sight-seeing and similar mental stimulation, from the sympathetic and too fidgety interference of well-meaning but oppressively-anxious friends, isolation becomes imperative, often in the hospital. There, induced by routine manner of living, by well-ordered direction of trained nurses, and by nutritious food properly adjusted in time and quantity for the digestive capacity, improvement is often rapid and permanent. The action of tonic drugs is re-enforced by electricity and massage. At a proper moment in convalescence, dulness is sought to be overcome by the stimulation of carefully-regulated diversion, and the physical and mental recuperation to be completed by calisthenics, drives, short walks and easy games, as croquet and tennis.

Disorders of digestion, according to this writer, are not less frequent complications of insanity than of its associated neurasthenic state. Their correction is essential to successful treatment, and may be expected to exert a prominently favorable effect upon the mental disease. Gastric and intestinal dyspepsia, functional derangement of the liver, constipation and its sequelæ, cholelithiasis and intestinal parasites are such frequent symptoms, that cases so affected have furnished grounds for the belief in the so-called sympathetic insanities. Recovery from acute melancholia following fecal impaction is reported by Dr. Hutchinson, and Mosher also has recorded a similar case in which disinfection of the primæ viæ was followed by relief of stuporous melancholia and restoration of the patient to his home and vocation. The study of this form of auto-intoxication throws much light on the causes and complications of acute insanity. Several interesting reports in illustration and vindication of this statement are given.

No less interesting is the study of the insanities dependent on diseases of the circulatory system and of the genito-urinary system. Dr. Mickle's analysis shows mitral regurgitation to be most frequently accompanied by depression with delusions of persecution and suspicion; mitral stenosis with impulsive excitement and discontent; aortic regurgitation with loquacity and delusions of exaltation and of internal sensations, such as magnetic influences; and aortic stenosis with impulsive violence and delusions of persecution and poisoning. Several illustrative cases occurring at St. Lawrence Hospital are reported by Dr. Mosher.

With regard to uremic insanity, it would appear that there is a large field yet to be explored in which the relations of renal insufficiency to various forms of mental alienation may be set forth. Mosher gives four conspicuous cases of uremic insanity, of which two resulted in death, one in chronic insanity, and one in restoration to mental health.

The question of the relations of insanity and tuberculosis presents great interest, and the same may be said of constitutional diseases such as gout and diabetes. The frequent co-existence of phthisis and insanity has been acknowledged by all authorities, and the substitution of one for the other in tuberculous families has been noted. Phthisical insanity may be of the mildly delusional, slightly demented type, or of the melancholic, monomania of suspicion type. "It is a very striking fact," says Dr. Mosher, "that nearly all pure cases of monomania of suspicion sooner or later die of phthisis."

There is an interesting paper by Dr. Hutchings on "The Douche-Bath, with Cases." These douche-baths, in the form of a coarse, cold spray, have been found very valuable in mania and dementia. The exposure should be brief, and subsequently energetic friction and massage employed.

Dr. James Burton contributes a paper on "The Blood in the Insane." He arrives at the general conclusion that in cases of senile dementia, as a rule, there is increase of leucocytes, while in cases of general paralysis they are markedly decreased; also that in cases of maniacal excitement the number of leucocytes is greatly increased.

There is an excellent paper by Dr. Robert G. Cook

[1] Cowles: Neurasthenia and Mental Symptoms. The Shattuck Lecture, 1891.

on "General Paralysis," and an elaborate analysis by Dr. Sawyer of "One Hundred Consecutive Autopsies at the St. Lawrence Hospital." This is a contribution of value to the aggregate statistics of the morbid anatomy of persons dying insane; it is illustrated by a number of plates, and a comprehensive table.

The volume is a good example of the kind of work which might be done at all our great insane hospitals; we hope that the managers of other institutions of the same kind may be stimulated to do likewise.

## AN EPIDEMIC OF LEPROSY IN RIGA.

Although it would seem that no further proof of the contagiousness of leprosy was needed, so many instances having been reported of its occurrence in persons who had been in intimate contact with other lepers, yet in view of the reluctance of a number of eminent foreign and American dermatologists to accept this view, the following statistics[1] of the occurrence of the disease in the poor-houses of Riga, may be appropriately and usefully reproduced.

During the last few years leprosy has been on the increase in Riga, but it has been very difficult to determine the causes, as many of those living in the suburbs are removed from medical supervision, and the period of incubation being so long, little weight can be laid on the facts supplied by the patients themselves. Still von Bergmann has succeeded in establishing the fact of contact between most of these cases and lepers that were known to him.

Von Reisner is physician to the leper hospital in Riga and can prove that the great majority of the seventy-five patients in the hospital have been in contact with lepers. Three cases of leprosy having appeared in one of the poor-houses of the city within a short period, an examination of the remaining inmates by von Reisner led to the discovery of five more cases. Of these eight cases two were of the tubercular form; the remaining six were cases of nerve leprosy. All were so marked that there could be no question as to the correctness of the diagnosis, and the bacillus lepræ, searched for in all, was found in the two cases of the tubercular form. Cases 1, 2 and 3 form a group by themselves. They had had neighboring beds for years and as they were Catholics, were separated from the other inmates. Case 1 had been in the institution twenty years; Case 2, ten years; Case 3, fifteen years. Case 1 came from a district known to be a focus for leprosy. In the second group, all examples of nerve leprosy, Cases 4, 5, 6, and 7 had either occupied neighboring beds or had been in intimate association with one another in the same room.

In another poor-house in the city, situated near the former, thirteen cases of leprosy were discovered. In almost all of the cases the patient had either had a neighboring bed, or had been in constant association with one or more of those affected.

[1] Arthur von Reisner: Monatsheft. für prak. Derm., February 15, 1894.

Farther he relates a case that seems to speak positively for the contagiousness of leprosy, a man whose occupation was that of a travelling juggler. He had never visited any places where leprosy was common, but four years before, he had travelled for a year with a merchant who was afflicted with leprosy. Although he kept away from him as much as possible, it sometimes happened that they were obliged to share the same sleeeping-room and to use the same towel. Two years afterward the first signs of leprosy appeared, and later unmistakable nodules of the forehead.

Of these twenty-three cases of leprosy, nine were instances where one who had occupied an adjoining bed to a leper was found to be affected; six had lived in close relationship with a leper for many years; four brought in the affection from without; four could only be explained by frequent association with the other lepers in the institution. The writer remarks that this is the same picture presented by every chronic, contagious disease, as heredity was in all cases excluded. When the feeble virulence of the disease is considered, 22 cases in from four to five years from a total of 340 inmates of the two institutions is a high figure. The writer's view is that advanced age predisposes to the contraction of leprosy, and that normal dietetic and hygienic conditions do not protect from it. He closes by describing some remarkable improvements that have occurred in cases of leprosy by the use of gurjun balsam. Cases of the tubercular form treated both externally and internally with this drug never failed to show some improvement. In one case which was treated by this method for ten months, a complete disappearance of the leprous tissue was effected. The patient returned soon afterward, however, with an acute febrile attack followed by dense, reddish-brown infiltrations covering nearly all the skin of the extremities and of the face.

## DIAGNOSIS OF CHRONIC HYDROCEPHALUS IN EARLY STAGES, BEFORE ENLARGEMENT OF THE SKULL HAS OCCURRED.

The difficulty in the diagnosis of hydrocephalus is naturally much increased when the collection of fluid in the ventricles has not yet led to enlargement of the skull. The diagnosis must then rest wholly on the clinical symptoms. Of these an exceedingly important one is the well-recognized spastic condition of the extremity muscles, which, however, varies within wide limits. This condition occurs not infrequently before the head has begun to enlarge, and especially in those cases in which an external hydrocephalus alone exists, or is accompanied by a collection of fluid in the ventricles. In cases of uncomplicated internal hydrocephalus the enlargement of the head is apt to occur at an early period in the disease, and so lead to an immediate correct diagnosis. Attacks of recurring eclampsia are of less importance than the more permanent spastic conditions. Congenital spastic rigidity of the limbs (Little's disease) is usually due to defec

tive development or to diffuse sclerotic processes in the cortex, and may occur quite independently of hydrocephalus. Especially important in differential diagnosis are the following facts well stated by v. Ranke (*Jahrbuch f. Kinderheilkunde*, Part IV, 1895):

(1) In congenital spastic rigidity the lower extremities usually are alone affected, whereas in hydrocephalus the arms are attacked as well, and at times even the muscles of the body.

(2) The congenital spastic condition is usually first noticed when the child begins to walk; the rigidity resulting from hydrocephalus, on the other hand, is for the most part an exceedingly early symptom.

(3) Accompanying eclamptic attacks are an indication in favor of hydrocephalus.

The differentiation of hydrocephalus from tetany is usually not difficult, owing to the progressive tendency of the one, and the tendency of the other, after a lapse of two or three weeks, toward recovery. Furthermore, cases of tetany with spontaneous tonic contractures in all extremities are very rare, and when they occur characteristic positions of the hand (obstetric hand) make diagnosis easy.

## MEDICAL NOTES.

Amalgamated Twins. — Dr. F. B. Heisordt (*Journal of the American Medical Association*) reports the birth of twins, the mother being a light-haired German woman and the father a negro; one of the twins was white and one black.

Semi-Centennial Anniversary of the Buffalo Medical and Surgical Journal. — This excellent contemporary proposes to signalize its semi-centennial anniversary, which will occur in a few weeks, by increasing the number of its pages from 64 to 80, and making other improvements.

A Tax on Physicians. — The *North Carolina Medical Journal* writes editorially, in sharp language concerning a recent bill in the State Legislature levying a tax of ten dollars a year on every practising physician. Such legislation is unprecedented, and seems to have absolutely no reasonable foundation.

The Medical Mind Fettered. — The Pennsylvania State Medical Society wants no papers longer than ten minutes, this year, at its annual meeting. A maximum limit of ten minutes is rather running brevity into the ground. It is hard to see how any great amount of wisdom could be crowded into so exceedingly short a space of time.

The Hospice Salpêtrière, made famous by the names of Pinel, Esquirol, Trélat, Vulpian, and Charcot, was first established in a building that had been originally a factory of saltpetre, whence its name. The buildings were first converted into an arsenal, and then in 1653 set aside as a home for aged and indigent women. In 1684 a prison for the detention of prostitutes was built in the centre of the grounds. A century later this building was turned into an asylum for the incurably insane. In 1862, when Charcot first became attached to the institution as *chef de service*, the population of the Salpêtrière was about five thousand.

The Influenza Epidemic in England. — The fatality of influenza in London last week (*British Medical Journal*, March 16th) showed a further considerable increase. The deaths primarily referred to this disease, which had been 24, 111, and 296 in the three preceding weeks, further rose to 473 during the week ending Saturday last, March 9th. This number considerably exceeds that recorded in any week during either of the two previous epidemics, and, with one exception, was higher than in any week on record. The mortality among elderly persons from the disease showed an even greater excess than in the preceding week, 255, or nearly 54 per cent., being of persons aged upwards of sixty. The calculation of the death-rates from influenza last week at different age-periods gives the following interesting results: Among persons under twenty years of age the mortality from influenza was equal to an annual rate of 1.5 per 1,000 estimated to be living at that age-period; among persons aged between twenty and forty the rate was 1.6 per 1,000; among persons aged between forty and sixty the rate was 8.1 per 1,000; among persons aged between sixty and eighty it was 40.6 per 1,000; while among persons aged upwards of eighty the rate was no less than 144.1 per 1,000. If the deaths are divided into two age-periods only — under sixty and above sixty years of age — it is found that among equal numbers living to one death from influenza among persons aged under sixty, there were 17 deaths among persons aged upwards of sixty. The deaths referred to diseases of the respiratory organs in London, which had been 840, 1,120, and 1,448 in the three preceding weeks, were 1,366 last week, and exceeded the average by as many as 824; of these 1,366 deaths, 938 resulted from bronchitis, against an average of 325; and 336 from pneumonia, against an average of 143. Many of these deaths, although primarily attributed to one or the other of these diseases, were indirectly due to influenza. In some of the large provincial towns, where influenza is fatally prevalent, very high death-rates were recorded last week, notably in Brighton, Halifax, Liverpool and Plymouth, in all of which the death-rate exceeded 40 per 1,000.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, April 3, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 38, scarlet fever 27, measles 311 (nine days), typhoid fever 4.

Bequests to Hospitals. — By the will of the late Moses Kimball, of Boston, $21,000 is bequeathed to the New England Hospital for Women and Children, $5,000 to the Massachusetts Charitable Eye and Ear Infirmary, and $5,000 to the Boston Dispensary.

Massachusetts Hospital for Inebriates. — The hearing at the State House before the Committee

on Public Charitable Institutions on the bill to enforce the use of the Keeley cure at the Massachusetts Hospital for Dipsomaniacs and Inebriates will take place on Tuesday, April 9th, for the petitioners, and Wednesday, April 10th, for the remonstrants, at 10th A. M.

The Non-Suppression of Bovine Tuberculosis. — The Bill at present before the Massachusetts Legislature for the suppression (!) of bovine tuberculosis has taken this form and substance: (1) An appropriation of only $100,000 for the Commission. (2) Full compensation to owners. (3) No use of the tuberculin test without the owner's consent.

Bovine Tuberculosis. — The Governor of New Hampshire has vetoed the bill recently passed by the legislature of that State appropriating $100,000 for the suppression of bovine tuberculosis. Farmers vote!

Death at the Age of One Hundred and one Years. — Jonathan Scott Ellis died at Farmington, Me., March 30th, at the age of one hundred and one years and eight months, from the effect of a fall received while he was preparing a razor to shave himself. It is reported that he had not required medical attendance for over eighty years previous to this injury.

NEW YORK.

A Death Attributed to Antitoxin. — On March 29th Bertha Valentine, a young girl seventeen years old, residing in Williamsburg (Brooklyn, E. D.), who was suffering from diphtheria, said to be of a mild character, was inoculated with antitoxin by the family physician. Almost immediately afterward she was seized with violent convulsions, and within five minutes was dead. The case was referred to the coroner; and the coroner's physician, Dr. J. M. Clayland, after making an autopsy, reported that death was due to the effects of the antitoxin injection. The attending physician, Dr. J. L. Kortright, is of the opinion that the fatal result was probably due to the fact that in putting up the vial used, some virulent poison had been mistakably labelled as antitoxin. The preparation employed was imported from Behring's laboratory, and was purchased in New York. Dr. Kortright has had quite a large experience with antitoxin in the treatment of diphtheria, and has been very favorably impressed with its efficacy in the disease. He has generally used the Pasteur antitoxin. It is stated that Miss Valentine contracted diphtheria from a young cousin, nine years old, who was visiting at the house. In this instance the disease had advanced to a hopeless stage before the family physician was called in. Dr. Kortright employed antitoxin (the Pasteur preparation) as promptly as possible, but death ensued in a short time. The Behring antitoxin used in Miss Valentine's case will be carefully examined by experts, and tests will be made with it upon animals.

Death of the Dahomey Giant. — "Colonel" Gilbert, formerly known as Barnum's Dahomey Giant, died on March 29th at the age of thirty-four. He was seven feet, five inches in height, and had been exhibited ever since he was seventeen. While travelling in Minnesota two years ago he met a young woman almost as tall as himself and married her. They then appeared together at museums. The body was taken to Scranton, Penn., for interment, and the coffin required a box nine feet long to hold it.

Weekly Mortality. — There were reported in the city 900 deaths during the week ending March 30th, against 887 for the preceding week, and 995 for the average of the corresponding weeks during the past five years. There were 40 deaths from diphtheria, an increase of five over the previous week, and 111 from pneumonia, a decrease of 34 as compared with the previous week. Twenty deaths were reported as due to influenza.

First Aid to the Injured. — A society composed of graduates of the course in first aid to the injured has lately been organized with the title, "First Aid to the Injured Alumni." Lectures will be given and meetings held in the United Charities Building.

Insufficient Appropriation for Quarantine. — At a meeting of the Quarantine Commissioners held March 29th, State Engineer Adams reported that the Ways and Means Committee of the lower house of the Legislature at Albany had cut $83,000 out of the annual quarantine appropriation, including $61,000 for a fire-proof building on Swinburne Island and $10,000 of the estimate of $35,000 for repairs and maintenance. The Health Officer, Dr. A. H. Doty, stated that he could not get along with this reduced appropriation, especially for repairs and maintenance. Extensive repairs are urgently needed, and he is at present building a pathological laboratory. A committee was accordingly appointed to go to Albany to explain the situation and endeavor to have the items restored.

## Miscellany.

### EXAMINATIONS BY THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE.

The Board of Registration in Medicine held examinations on the 6th and 12th of March in Boston, and on the 29th of March at Springfield.

At the first, 47 applicants were examined and one was rejected. At the second, 10 were examined and three rejected. At the last there were 34 applicants, but the result is not yet determined.

The law allows those who have been rejected to be re-examined at any regular meeting of the board any time within two years without additional fee, and thereafter as often as they may desire upon payment of the fee of ten dollars.

The examination is a written one on the following subjects: surgery, physiology, pathology, obstetrics and practice of medicine. Graduates of schools recognized by the board as giving a good medical education, regular, homeopathic or eclectic, are given one question on each of the five subjects allowed by the law. Non-graduates are given five questions. Seventy per cent. is required to successfully pass.

The first report of the board is in the hands of the State printers. The appendix will contain the names of all those who have been registered who made application prior to the first of January.

Another examination will be held some time during the present month. Notices are sent to those whose applications are on file.

## A PASTEUR INSTITUTE AND VIVISECTION.

AN exceedingly temperate and able article has appeared in the February number of the *Indian Medical Gazette*, by Surgeon-Colonel Harvey, relating to the founding of a Pasteur Institute in India. The article was called forth by the misguided opposition to the scheme, of the Bengal Branch of the Anti-Vivisection Society. As has usually been the case, the anti-vivisectionists have taken up the cudgels armed with quite insufficient facts, but nevertheless have succeeded in stirring up public sentiment to a considerable degree.

It is Dr. Harvey's purpose in his paper, and he succeeds most admirably, to go over with care and fairness the much disputed ground, and from the standpoint of a large-minded man, who is not personally a vivisectionist, to weigh the arguments for and against the practice. His conclusions are simply those to which every one must come who has the best interests of scientific medicine at heart, and who is able to see the inevitable tendency of future investigations. To the moralist it may appear a strange anomaly that progress must be along lines, which entail death and a certain amount of suffering to lower animals, but in the light of the brilliant results of experimental medicine during the past few years, it is hard to see any other alternative for the future. Aided by Dr. Harvey's article the Pasteur Institute will doubtless be founded, and enter upon a career of constantly increasing usefulness.

## SUCCESSFUL LAPAROTOMY FOR REVOLVER WOUND OF THE ABDOMEN IN A PREGNANT WOMAN.

THE Paris correspondent of the *Lancet*, writing under date of March 12th, gives the following account of a most remarkable case:

"M. Albarran presented to the Société de Chirurgie on the 27th ult. a young woman aged nineteen years who was admitted to the Hôpital Cochin for a bullet wound in the umbilical region at a spot four fingers' breadth from the median line. Five hours and a half after the receipt of the wound she had vomited only once — during her removal to hospital. The patient was collapsed, and there was ascertained to be some dulness at the lower part of the abdomen. A penetrating wound with internal hemorrhage was diagnosed, and immediate laparotomy was had recourse to. During the preparations for the operation the state of the breasts led to a vaginal examination, and a pregnancy advanced to from the fourth to the fifth month was detected. Four wounds of the small intestine, necessitating the resection of twenty centimetres of the bowel, were seen directly the abdomen was opened; a fifth intestinal wound was sutured, and search for the source of hemorrhage which continued revealed a perforation of the mesentery involving a branch of the superior mesenteric artery, which was tied. The fundus of the gravid uterus was the seat of a small wound through which protruded a loop of the umbilical cord. Wishing to terminate the operation promptly, M. Albarran resected the loop on a level with the uterine surface, the stump being returned into the uterine cavity. The abdominal incision was then quickly closed. The next day abortion took place, but nothing of interest occurred afterwards to retard complete recovery."

## REPORT FROM AN EARLY CASE OF TUBERCULIN INJECTION.

IN a recent number of the *Philadelphia Polyclinic*, the following statements are made:

"We have just learned through his physician, Dr. George W. Free, of Harrisburg, formerly of Laramie, Wyoming Territory, that the young man, a patient of Dr. J. Solis-Cohen, with tuberculosis of the lungs and larynx upon whom, through the courtesy of Police-Surgeon Dr. Angney, the first injection of tuberculin was made in Philadelphia, December 17, 1890, at Jefferson Medical College Hospital, in the presence of Drs. Henry Hearn, Harris and others, is alive and well, with a strong voice, vigorous and without any evidence of disease.

"In this case subsequent injections were made on the 19th and 30th of December, and on January 6th, 9th, 11th and 14th, after which the previous hygienic and medicinal treatment was resumed."

It is a matter of considerable interest to have a definite report after the lapse of over four years, of one of the cases originally treated with tuberculin. One case of course proves nothing, and the apparent cure may perfectly well have been due to other agencies than the tuberculin injections; nevertheless, evidence even of so uncertain a character has its decided value.

# Correspondence.

## THE CONTROL OF VIVISECTION.

PHILADELPHIA, PA., March 27, 1895.

MR. EDITOR: — May I, through your columns, sound a note of warning in regard to certain circulars and petitions which have been more or less widely circulated by Dr. Albert Leffingwell, of Cambridge? I am led to do this both by the remembrance of the fact that members of the medical profession are not rarely led by their good nature and inadvertence to give their names improperly, and also by the fear that some physicians may be misled by the positive false statements contained in these circulars.

It is astounding that even the wildest fanaticism should so blind a man of apparent culture and honesty as to lead to such publication as is contained in the following paragraph (italics as in circular):

"11. While State laws generally prohibit cruelty, yet, in the great majority of cases, *there is no law, no college rule, or regulation even*, preventing the infliction upon living animals of the utmost conceivable torture, *so long as it is done within the walls of the college laboratory and by permission of the instructor.*"

I do not know in detail the laws of all the States in the Union; but certainly in Pennsylvania and in many, if not in most of the other States, the college instructor or the college student who is guilty of cruelty is just as liable to punishment as is the carter or the huntsman who abuses the horse or dog.

It is probable that no American physiologist believes in

unrestricted vivisection; it is certain that the statement that unrestricted vivisection exists in most parts of the United States is a falsehood. What the American physiologist contends for is that vivisection requires no special brand to be placed upon it; that the vivisectionist needs no other restriction than that placed upon all other members of the community by the general law. Every physiologist familiar with antivivisection literature knows that it is full of misstatements, so that this attempt to manufacture public opinion by the circulation of what should be called by the Saxon word "lies," is concordant with the history of the past in warranting a strong suspicion that signatures to the document circulated by Dr. Leffingwell will not be honestly dealt with. I therefore venture to suggest that the proper receptacle for the circulars is the waste-paper basket.

Very respectfully yours,
H. C. WOOD, M.D.

## THE AMERICAN HUMANE ASSOCIATION AND VIVISECTION.

CAMBRIDGE, March 30, 1895.

MR. EDITOR: — The American Humane Association is at present engaged in an attempt to ascertain the views regarding scientific experimentation upon living animals entertained by the leaders of thought and opinion throughout the United States and Europe. For the purpose of giving definite form to impressions and concepts that are sometimes vague, and for the more ready classification of replies, there have been drawn up for comparative consideration, four different statements of opinion, couched in clear and emphatic terms, and expressing views radically distinct from one another. It is, of course, impossible to represent all existing shades of opinion in Europe and America by these four statements, and every recipient is specially requested to erase all clauses with which he cannot agree, and to favor the Committee with the fullest expression of his own particular views. That the four statements thus presented, do fairly represent existing shades of sentiment, is evinced by the fact, that while many slight changes in phraseology are often made, yet *all* of them — and particularly the first two which favor this form of research — have received the signatures of leading scientific men throughout the United States, and that, without erasure or change in any respect.

It has recently been decided to test medical opinion on this subject in one or more States more minutely than would be possible for the entire country. Every physician in Massachusetts whose standing in the profession is evinced by a certain period of practice will be asked to express judgment on the question. No such census of opinion has ever before been attempted, and the Medical Committee hope that the response of the profession may be as complete as possible. I trust, sir, that not only the members of the medical profession who favor extreme views in either direction may respond, but that there will also be afforded a representation of that sentiment favorable, within limitations, to all vivisection founded on utility, but not to the wantonness of a Magendie, or the cruelty of a Mantagazza. I am, sir, etc.,

ALBERT LEFFINGWELL.

## COLD IN THE TREATMENT OF PNEUMONIA.

PHILADELPHIA, March 30, 1895.

MR. EDITOR: — My last paper on "Ice-Cold Applications in Acute Pneumonia," gives a record of seventy-four cases so treated and only two deaths.

Being desirous of making a full collective report on this subject, I take the liberty of asking those members of the medical profession who have tested this measure to kindly give me the result of their experience with it. Full credit will be given to each correspondent in the report which I hope to publish.

THOMAS J. MAYS, M.D., 1829 Spruce Street.

## METEOROLOGICAL RECORD,

For the week ending March 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather. * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..17 | 29.75 | 30 | 36 | 23 | 51 | 40 | 46 | W. | S.W. | 18 | 13 | C. | C. | |
| M..18 | 29.62 | 32 | 37 | 27 | 58 | 46 | 52 | W. | W. | 24 | 24 | C. | C. | |
| T..19 | 29.82 | 33 | 40 | 26 | 35 | 48 | 42 | W. | W. | 22 | 10 | C. | C. | |
| W..20 | 29.98 | 34 | 43 | 23 | 44 | 53 | 48 | N.W. | N.E. | 17 | 5 | C. | F. | |
| T..21 | 30.01 | 32 | 38 | 25 | 47 | 60 | 54 | N. | S.E. | 12 | 3 | O. | C. | |
| F..22 | 30.29 | 36 | 41 | 31 | 75 | 63 | 69 | N.E. | N.E. | 7 | 5 | O. | O. | |
| S...23 | 30.50 | 37 | 42 | 32 | 52 | 54 | 53 | N. | S.W. | 13 | 8 | C. | C. | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatning; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 23, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diarrheal Diseases. | Scarlet fever. | Diphtheria and croup. |
| New York | 1,956,000 | 887 | 336 | 12.21 | 20.35 | 1.87 | 2.20 | 4.95 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 490 | 141 | 9.40 | 18.20 | 1.80 | — | 4.60 |
| Brooklyn | 1,043,000 | 439 | 153 | 11.50 | 20.24 | — | .69 | 8.51 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,167 | 223 | 59 | 9.99 | 23.40 | .90 | 2.25 | 3.15 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 114 | 32 | 3.52 | 12.32 | 1.84 | — | — |
| Cincinnati | 325,000 | 146 | 38 | 3.45 | 16.56 | 1.38 | — | .69 |
| Cleveland | 325,000 | 93 | 41 | 9.72 | 12.96 | 1.08 | 4.32 | 1.08 |
| Pittsburg | 272,000 | 108 | 36 | 3.68 | 18.40 | — | — | 1.84 |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 49 | 11 | — | 26.52 | — | — | — |
| Charleston | 65,165 | 23 | 4 | 4.35 | 30.45 | 4.35 | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 37 | 10 | 13.50 | 18.40 | — | — | 5.40 |
| Fall River | 92,233 | 42 | 14 | 2.38 | 30.94 | — | 2.38 | — |
| Lowell | 90,613 | 39 | 16 | 12.80 | 20.48 | 5.12 | — | — |
| Cambridge | 79,697 | 20 | 6 | 5.00 | 20.00 | — | — | — |
| Lynn | 65,123 | 22 | — | 13.65 | 13.65 | 4.55 | 4.55 | — |
| Springfield | 50,294 | 26 | 7 | 11.55 | 19.25 | — | — | — |
| Lawrence | 49,900 | 19 | 5 | — | — | — | — | — |
| New Bedford | 47,741 | 21 | 8 | 19.04 | 14.28 | — | — | 4.76 |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 8 | 2 | 12.50 | 37.50 | — | — | — |
| Salem | 33,158 | 11 | 4 | — | 18.18 | — | — | — |
| Haverhill | 32,925 | 7 | 2 | 28.56 | 28.56 | 14.28 | — | 14.28 |
| Malden | 30,209 | 11 | 3 | 18.18 | 9.09 | — | 9.09 | — |
| Chelsea | 29,806 | 9 | 2 | 22.22 | — | — | — | — |
| Fitchburg | 29,383 | 13 | 3 | — | — | — | — | — |
| Newton | 28,837 | 7 | 0 | 14.28 | — | — | 14.28 | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,964 | 14 | — | 14.28 | — | — | — | 14.28 |
| Waltham | 22,058 | 4 | 1 | — | 25.00 | — | — | — |
| Quincy | 19,642 | — | — | — | — | — | — | — |
| Pittsfield | 18,802 | 3 | 0 | — | 66.66 | — | — | — |
| Everett | 16,585 | — | — | — | — | — | — | — |
| Northampton | 16,331 | 8 | 1 | — | 25.00 | — | — | — |
| Newburyport | 14,073 | 5 | 0 | — | 40.00 | — | — | — |
| Amesbury | 10,920 | 3 | 1 | — | 33.33 | — | — | — |

Deaths reported 3,018: under five years of age 970; principal infectious diseases (small-pox, diphtheria and croup, measles, diarrheal diseases, whooping-cough, erysipelas and fevers) 302, acute lung diseases 590, consumption 368, diphtheria and croup 127, scarlet fever 41, diarrheal diseases 41, measles 23, typhoid fever 23, cerebro-spinal meningitis, whooping-cough, and erysipelas 15 each, malarial fever 2, small-pox 1.

From measles New York 14, Providence 4, Brooklyn 2, Boston, Cleveland and Clinton 1 each. From typhoid fever Philadelphia 10, Lowell 3, Cleveland and Pittsburgh 2 each. New York, Brooklyn, Boston, Cincinnati, Springfield and Clinton 1 each. From cerebro-spinal meningitis New York 6, Boston and Worcester 2 each, Brooklyn, Providence, Lynn, Somerville and Chelsea 1 each. From whooping-cough Brooklyn 4, New York 3, Philadelphia and Boston 2 each, Cambridge, Springfield, Brockton and Chelsea 1 each. From erysipelas New York 5,

New Bedford 3, Philadelphia, Brooklyn and Boston 2 each, Providence 1. From malarial fever Washington 2. From small-pox Cincinnati 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending March 16th, the death-rate was 32.2. Deaths reported 6,534: acute diseases of the respiratory organs (London) 1,120, whooping-cough 113, diphtheria 52, measles 51, diarrhœa 36, fever 27, scarlet fever 22, small-pox (London) 1.

The death-rates ranged from 15.6 in Norwich to 48.0 in Brighton; Birmingham 30.9, Bolton 32.3, Croydon 34.5, Gateshead 26.1, Hull 22.9, Leeds 34.0, Leicester 20.7, Liverpool 37.1, London 33.4, Newcastle-on-Tyne 34.5, Nottingham 32.2, Oldham 44.0, Preston 40.3, Salford 30.0, Swansea 28.5.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 23, 1895, TO MARCH 29, 1895.

The extension of leave of absence on surgeon's certificate of disability, granted FIRST-LIEUT. HENRY R. STILES, assistant surgeon, is still further extended two months, on surgeon's certificate of disability.

The leave of absence for one month is granted CAPTAIN JEFFERSON D. POINDEXTER, assistant surgeon.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 30, 1895.

L. B. BALDWIN, surgeon, detached from Pensacola Navy Yard, and ordered to the U. S. S. "Montgomery."

J. S. HOPE, assistant surgeon, ordered to the U. S. S. "Montgomery."

HOWARD WELLS, surgeon, detached from the U. S. S. "Montgomery," and granted three months' leave.

## OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING MARCH 30, 1895.

G. T. VAUGHAN, passed assistant surgeon, to proceed to Philadelphia, Pa., and assume command of service, March 28, 1895.

G. H. GARDNER, assistant surgeon, granted leave of absence for fifteen days, March 22, 1895.

H. S. CUMMING, assistant surgeon, to rejoin station New York City, New York, March 16, 1895.

PROMOTION.

J. M. EAGER, commissioned as passed assistant surgeon, March 26, 1895.

## APPOINTMENTS.

The following changes have taken place in the Carney Hospital Staff:

*Resigned.*

DR. A. COOLIDGE, Jr., from position of physician to out-patients.

DR. J. E. GOLDTHWAIT, from position of surgeon to out-patients.

*Appointed.*

DR. J. E. GOLDTHWAIT, to position of orthopedic surgeon to out-patients.

DR. G. E. THOMPSON, to position of physician to out-patients.

## SOCIETY NOTICE.

PHILADELPHIA PATHOLOGICAL SOCIETY.—At the semi-annual conversational meeting of the Philadelphia Pathological Society to be held in the hall of the College of Physicians, northeast corner 13th and Locust Streets, on Thursday, April 25, 1895, at 8.15 P. M., Dr. George Dock, of the University of Michigan, will deliver an address entitled "Trichomonas as a Parasite of Man." Members of the profession are cordially invited to be present.

AUGUSTUS A. ESHNER, M.D., *Secretary.*

## RECENT DEATHS.

DR. WILLIAM S. W. RUSCHENBERGER, an eminent naval surgeon and scientist, died March 24th, in Philadelphia, at the age of eighty-eight years. He was a graduate of the University of Pennsylvania and served with distinction in the medical service of the U. S. Navy. In 1871 he was commissioned medical director on the retired list, with a relative rank of commodore. He was an active member of the Academy of Natural Sciences, whose vice-president and president he has successively been. He was a notable fellow of the College of Physicians, whose secretary and vice-president he had been. He was also a member of the American Medical Association, of the American Philosophical Society, and of the Historical Society of Pennsylvania. He had made a considerable number of contributions to scientific literature.

DR. JOHN A. RYDER, Professor of Comparative Embryology in the University of Pennsylvania and a very distinguished embryologist, died on March 26th, at the age of forty-three years. He was for a time embryologist to the United States Fish Commission, and made numerous valuable contributions to the art of fish-culture and in other departments of biology. In 1886 he was made professor of Comparative Embryology in the University of Pennsylvania. He was a strong advocate of the mechanical theory of evolution.

## BOOKS AND PAMPHLETS RECEIVED.

The Surgical Treatment of Inguinal Hernia. By Henry O. Marcy, A.M., M.D., LL.D., of Boston, U. S. A. Reprint. 1894.

Transactions of the Medical Society of the State of North Carolina, Forty-first Annual Meeting held at Greensboro, N. C., May 15, 16 and 17, 1894. Washington, N. C.: Jackson & Bell. 1894.

The Medical Annual and Practitioner's Index: A Work of Reference for Medical Practitioners. Thirteenth year. Bristol: John Wright & Co., Stone Bridge. London: Simpkin, Marshall, Kent & Co., Limited. 1895.

Leçons sur les Maladies Nerveuses (Salpêtrière, 1893-1894). Par le Dr. E. Brissaud, Professeur Agrégé à la Faculté de Médecine, Médecin de l'Hôpital Saint-Antoine, Recueillies et Publiées par Henry Meige. 1 vol. grand in-8°, avec 240 figures (schémas et photographies). G. Masson, Editure. 1895.

Digestive Protrolysis, being the Cartwright Lectures for 1894, delivered before the Alumni Association of the College of Physicians and Surgeons of New York. By R. H. Chittenden, Ph.D., Professor of Physiological Chemistry in Yale University. New Haven: Tuttle, Morehouse and Taylor. 1895.

A Manual of Bandaging, Adapted for Self-Instruction. By C. Henri Leonard, A.M., M.D., Professor of Medical and Surgical Diseases of Women, and Clinical Gynecology in the Detroit College of Medicine. Sixth edition, with 139 engravings. Detroit, Mich.: The Illustrated Medical Journal Co., Publishers.

Suggestions to Hospital and Asylum Visitors. By John S. Billings, M.D., Director of the Hospital of the University of Pennsylvania, and Henry M. Hurd, M.D., Superintendent of the Johns Hopkins Hospital, with an introduction by S. Weir Mitchell, M.D. Philadelphia: J. B. Lippincott & Co. 1895.

Enlargement of the Prostate; Its Treatment and Radical Cure. By C. W. Mansell-Moullin, M.A., M.D., Oxon., F.R.C.S., Surgeon to, and Lecturer on, Physiology at the London Hospital; Late Radcliffe's Travelling Fellow and Fellow of Pembroke College, Oxford, and Hunterian Professor at the Royal College of Surgeons. Philadelphia: P. Blakiston, Son & Co. 1894.

Syphilis. By Alfred Cooper, F.R.C.S., Eng., Consulting Surgeon to the West London Hospital; Senior Surgeon to St. Mark's Hospital for Fistula; Late Surgeon to Lock Hospital, etc. Second edition, enlarged and illustrated by colored plates. Edited by Edward Cotterell, F.R.C.S., Eng., Surgeon (Out-Patients) London Lock Hospital, etc. Philadelphia: P. Blakiston, Son & Co. 1895.

The Medical, Pharmaceutical and Dental Register-Directory and Intelligencer with Special Medical, Pharmaceutical and Dental Departments Containing Detailed Information of Colleges, Hospitals, Asylums, Medical Societies, etc., for Pennsylvania, New York, New Jersey, Maryland, Delaware and the District of Columbia. Third edition. Philadelphia: George Keil, Publisher and Editor. 1895.

Memoranda and Tables of Human Anatomy. Vol. I. Being a Complete Description of the Muscles, Ligaments, etc., for the use of Practitioners and Students of Medicine. By Justin Herold, A.M., M.D., Ex-deputy Coroner of New York, etc., and Sebastian J. Wimmer, M.A., M.D., Author of Tables and Notes on Human Osteology, etc., with a preface by James E. Ganetson, A.M., M.D. Philadelphia: The Medical Publishing Co. 1894.

Manual of Chemistry; a Guide to Lectures and Laboratory Work for Beginners in Chemistry, a Textbook Specially Adapted for Students of Medicine, Pharmacy and Dentistry. By W. Simon, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons of Baltimore, in the Maryland College of Pharmacy and in the Baltimore College of Dental Surgery. Fifth edition, thoroughly revised. With forty-four illustrations and eight colored plates, representing sixty-four chemical reactions. Philadelphia: Lea Brothers & Co. 1895.

## Lecture.

### THE CARE OF THE BREASTS AFTER LABOR.[1]

BY EDWARD REYNOLDS, M.D.

GENTLEMEN: — In the treatment of the breasts after labor, our object is to so regulate the amount of milk in the breasts, that the patient will be spared the pain and other evil consequences which follow an undue engorgement of them. To this end, we have at our disposal the following expedients with which to work, the baby, the breast-pump, massage, the bandage, the collodion dressing, the poultice, the ice-cap and the ice-poultice.

The first step in any subject is to acquire a practical knowledge of the machinery with which you are to work; and I propose now to demonstrate to you the use of each of these methods of treatment, and at the same time to speak briefly of the principles which should guide you in their employment.

*The Baby.* — Nursing is the physiological and only natural method of emptying the breast; but it is often insufficient, and is, moreover, contraindicated by the presence of inflammatory disease of the organ. We may say then that we use the baby only when the breast can endure the stimulating effect of nursing, when we wish to keep up the milk, and when there is nothing in the milk that will be harmful to the child.

*The Breast-Pump.* — The use of the pump should never be pushed to the point of causing pain; and it is therefore well to restrict ourselves to such a pump as this, that is, to one which is not exhausted by a piston or by a rubber bulb, but by a tube which connects it with the patient's mouth. She is instructed to suck upon the tube and to stop whenever it causes pain. This pump also has the advantage of being easily cleansed. It is known as the Phœbe Bailey breast-pump.

The breast-pump is in itself irritating to the breast, and seldom empties it completely, as it is only capable of withdrawing the milk which is already in the large ducts near the nipple; but it is often useful as an adjuvant to massage, as the breasts are often more easily emptied by this combination than by massage alone.

The pump should never be applied to an inflamed breast.

*Massage.* — The technique of massage to the breasts may be divided into two parts, the first having for its aim the decreasing of the sensitiveness of the inflamed lobe; the second, emptying of the milk. Exactly how massage decreases the sensitiveness of the breast has not been adequately explained; but it is a fact that after a few minutes' massage a breast which has been exquisitely sensitive will gradually decrease in sensitiveness. The fact applies to all inflammations of the breast; yet, as we shall see, there are inflammations of the breast, in which, though the immediate effect is beneficial, its remote effect is harmful, and therefore massage must be restricted to one class of cases.

[The process of emptying an engorged breast by massage was here demonstrated.]

(1) When massage is applied, it should begin with the movements which decrease sensitiveness, that is, with extremely light strokes with the tips of the fingers from the periphery of the breast towards the nipple. The breasts or fingers should be lubricated by some emollient, it matters little what; and this stroking movement from the periphery towards the centre continued. At first only the lightest possible touch can be employed, but in a short time slightly deeper pressure may be used with equally soothing effect. If at any moment there is pain, slightly less pressure must be used. The process is continued until quite deep stroking is borne without causing pain. The breast will be by this time pretty soft, and the second motion then begins.

(2) In the generally engorged breast the whole breast should be gathered between the edges of the hands, lifted gently from the pectoral muscles, and squeezed gently from the periphery towards the nipple. If there is only a certain portion of the breast affected, the massage must be especially directed towards this, which should be gently urged as a whole towards the nipple. Great care should be used not to cause real pain. Each pressure is usually followed by the appearance of a little thickened milk from the ducts connected with that portion of the breast which is under the hand, and this process should be continued until the affected portion is soft, or until tenderness reappears. A bandage should be applied after the massage, and the massage should be used not at regular intervals but whenever the breasts become uncomfortably tense.

*The Breast-Bandage.* — [Here the breast-bandage was applied before the class.] The breast-bandage is one of the best means we have of meeting the more common affections of the breast. It is used to give rest and quiet to the breast, just as the splint is used in sprains. It is intended (1) to give surgical rest in all cases in which there is trouble with the breast; (2) it is also used in cases where we are afraid the weight of a pendulous breast will lead to engorgement and inspissation; (3) it is used as a means of applying pressure and keeping the breast from filling.

The bandage used in the Boston Lying-in Hospital is a T-shaped piece of cloth, which is applied by passing the tail of the T under the patient, across the scapular region, and bringing the ends of the cross-bar together, one above, the other below the breasts. This ready-made bandage may be replaced by an extemporaneous T made from a couple of towels. One should be folded at a convenient width to go across the back, not so narrow as to cut nor so wide as to be inconvenient to the patient. The cross-bar of the T should be folded to the size of the patient's breasts, being measured on the patient's chest and so folded that when applied it will extend an inch or an inch and a half beyond the periphery of the breasts. This should be folded in the middle, and then attached to the first strip by means of a safety-pin, which should be inserted through the back strip first, into the front strip, and out again, so that when the bandage is applied, the pin is outside and cannot make pressure against the patient. A single safety-pin in the middle is ordinarily sufficient; when the breasts are large, two pins should be used, one at each edge. The tail should then be placed under the patient's back exactly opposite the nipples and drawn just so far through that when the bandage is pinned the end of the cross towel is just outside the outer edge of the breast. Usually it is necessary to apply shoulder-straps to keep the upper edge of the bandage from slipping down. This piece of cloth should be attached at its middle point to the

[1] A lecture delivered in the wards of the Boston Lying-in Hospital during the Summer Courses of Harvard University for 1894.

middle of the towel at the patient's back, being fastened after the tail is in position to insure that the attachment is at the spinal column. The free ends are brought one over each shoulder and pinned to the upper edge of the bandage in front directly above the nipples. Either part of the bandage in front may be fastened first; everything being in position, the bandage is drawn forward across the patient's breasts which are moved out of the way by the hands of the patient. The middle of the free end of the tail which goes under the patient's back should be opposite the middle of the outer edge of the breast. The upper half of the bandage is usually secured first and its upper edge should at once be attached to the shoulder-strap at a point opposite the upper middle line of the breast to prevent the upper edge of the bandage from slipping down and pressing on the breast tissue. When the upper part of the bandage has been attached the lower part is drawn across and fastened by its lower edge to the tail in the same manner. It is then attached opposite the middle of the lower edge of the breast to the binder to prevent it from slipping upwards. The patient is then asked to raise the breasts towards the median line in order to have the bandage clear of them while it is being pinned. The rest of the bandage is drawn smoothly across the breast and pinned to the tail in the same way, the pressure gradually diminishing from the outer edges of the bandage to the edges nearest the nipple. The hand of the physician or nurse should be inside of the bandage to avoid the danger of sticking the pin into the patient. The bandage should be so applied that there is considerable pressure at its edges, and that the pressure is gradually and smoothly diminished toward the nipple. The breasts are also drawn near to the median line as well as subjected to this uniform pressure. That the pressure on the inner, may be the same as that on the outer sides of the breasts a piece of absorbent waste is placed between them and the bandage is drawn over it in the median line by a safety-pin passed from edge to edge of the bandage. If a single safety-pin is not enough, two or more may be looped together in the form of a chain. The milk often begins to run from the breasts at once. If the end of the tail is long enough it may be laid across the nipples to absorb the milk which runs from them.

*Contractile Collodion.* — In extreme cases where it is absolutely necessary to keep the breast empty, we may use a dressing of crepe lisse and contractile collodion, whereby the breast is forced into a small mass, against the ribs; but this dressing is very distressing to the patient. This, like all other pressure dressings, should be applied so far outside the breasts that there is no chance of cutting off an island of breast tissue.

*The Poultice.* — The hot poultice may be made of any convenient material enclosed between two pieces of cloth. It is used for the relief of the symptoms attending a distinct phlegmon, when we have given up all hope of its resolving and are waiting, as we sometimes may for a short time, before opening the abscess.

*Cold Applications.* — Cold dressings are used for checking inflammatory affections in their inception and before pus appears. Cold may be applied to the breasts in several ways: (1) Small tubes made into a spiral through which cold water continuously flows may be placed over the affected breast. These spirals may be large or small, depending upon whether the application is to be made to the entire breast or to individual spots. (2) More commonly we use a rubber ice-bag containing ice so finely divided as not to irritate the breast. (3) The ice-poultice is an excellent substitute. This is prepared from bran with small fragments of ice scattered through it. As the ice melts the meal absorbs the water. The meal also prevents the ice from irritating the sensitive breast. There should be enough meal to prevent dripping, but still plenty of ice well distributed through it.

[These appliances were here shown.]

We are now in a position to consider the several branches of our subject: (1) the care of normal breasts after labor; (2) the arrest of lactation either (*a*) at its beginning or (*b*) after prolonged nursing; and (3) the care of threatened abscess of the breasts, to which we shall have to add the operative treatment of fully-developed abscesses.

### CARE OF THE NORMAL BREASTS.

We must be guided in this (1) by the character of the breasts and (2) by the manner in which the milk comes into them. On the whole the most satisfactory way in which the milk can appear is when it comes slowly and gradually. In such cases it is sometimes rather late for the baby, but almost never makes any trouble for the mother. In other cases the milk appears very suddenly, the breasts fill up in a few hours to a high degree of tension, and there is probably more milk secreted than after lactation has become established. The breasts become large and tense and the skin over them becomes shiny; the patient complains of pain, and sometimes has a slight elevation of temperature. If the milk comes slowly no treatment is needed other than regularity of nursing; the infant should be placed to the breast as soon as the mother is rested from her labor, and thereafter once in six hours; the child thus gets a little sweetish colostrum, and this not only satisfies its appetite but also tends to loosen its bowels. Nursing also stimulates the contractions of the uterus by reflex effect; and, finally, encourages the appearance of the milk, and tends to bring it gradually rather than with a rush. As soon as lactation is established the breasts should be nursed alternately, once in two hours.

When the breasts are very large and heavy, they may be rendered more comfortable to the patient, and any danger of inspissation of the milk can be prevented by the application of a light bandage as a matter of routine. This is much more comfortable to the patient if made from the material known as stockinet, which is elastic enough to yield to the respiratory movements, and at the same time supports the breasts. It should not, of course, be applied very tightly.

When the milk comes with a rush and the breasts become tense and painful, much discomfort and risk may be saved to the patient if a reasonably firm bandage is applied at once. This renders it very difficult for the breasts to become overdistended. The bandage in itself is somewhat uncomfortable to the patient, but it is well worth enduring to get rid of the greater discomfort due to distended breasts. When the breasts are already distended and painful, the use of the bandage may also be supplemented by massage.

### ARREST OF LACTATION.

If it becomes important to dry up a breast at the very start, that is, when there is a stillborn child, or when it has been decided in advance that the baby is

not to nurse, it may be done by the breast-bandage, massage, and, occasionally, the use of the breast-pump. The bandage should be applied in advance of the appearance of the milk, and as firmly as the patient can be induced to endure it. When in spite of the bandage the breasts become full, massage and occasionally the breast-pump find their use, and should be employed after the manner which was shown to you, until the secretion ceases. The application of the ice-cap or ice-coil over the bandage will sometimes do much to discourage secretion. When the reason for drying up the breasts is that they have been nursed long enough and that the child is ready for other food, the process is much easier and safer. The breasts are physiologically ready to cease their activity, and all that is necessary is to break up their habit of secreting. If the baby, which has been applied to the breast at regular intervals, is put on the bottle and the breasts are let alone, they soon become tense; if then they are emptied they will usually go for a longer time, and so the successive intervals lengthen. When the intervals have become thoroughly irregular the emptying of the breast should not be done by the baby because it is not good for the child itself; it may then be done by the breast-pump, supplemented if necessary by a little massage. In case pain or tenderness comes on, the patient should be put to bed, a tight bandage should be applied, and the breast treated by massage, and, if necessary, by the ice-cap.

### THREATENED ABSCESS OF THE BREAST (EXHIBITION OF A CASE).

This case, gentlemen, was delivered fourteen days ago. Ten days after delivery there came a pain in the left nipple. The following morning there was a slight rise of temperature, and in the evening a temperature of 102°, with the appearance of a slightly sensitive red lump in the inner and upper quadrant of the left breast. The child was removed from the breast and an ice-cap and breast-bandage were applied; the next morning the temperature was 100°, and the tenderness and redness were much decreased. That night cautious and very light massage was applied to the affected part; this emptied the breast as a whole, but did not relieve the affected lump. Since then the temperature has been normal, the lump in the breast still remains, and the blush on the skin still continues. There is a history of a blow six or seven months ago, not followed by any serious pain or lameness. How much this has to do with the case I cannot say. On examining the breast we feel a hard lump one and one-half inches long and one inch broad in the upper and inner part of the breast. The blush on the skin is shaped like a piece of pie, narrow at the areola and broad at the periphery of the breast. The prognosis is doubtful. The treatment for the last three days has been light bandaging, the ice-cap, and abstinence from nursing. The local treatment will not be changed, unless the use of the knife becomes necessary. With this case as a text we will take up the general subject of abscess of the breast.

In what I am about to say of threatened abscess of the breast, I feel bound to divide the cases into two classes, which are quite different in pathology and prognosis. This is one of my individual views and so far as I know is not supported by any other authority, but I have no hesitation in teaching it, as it is founded on many years of observation and has been deduced from a large number of cases. I believe that there are two definite varieties of mammary abscess. The one is due to inspissation of the milk within the ducts and acini of a given lobe of the gland, caused by a migration of bacteria from the nipple into the ducts. In the second and less common class, on the other hand, the essential pathological entity is a phlegmonous inflammation of the connective tissue of the breast, due to absorption of poisons by the lymphatics, precisely as occurs in other parts of the body.

*Inspissation Abscesses.*— Clinically, you will find in this first class of cases a more or less rounded, irregular, lobulated, hard mass of definite outlines, usually extremely sensitive to pressure and seldom accompanied by redness of the skin over it. It is usually extremely painful to the patient, even when the breast is at rest, and is usually attended by a sudden and marked elevation of temperature. In such cases, on thorough massage, you will see the ducts which connect with the affected lobe discharge quantities of a semi-fluid, almost cheesy substance, followed by natural milk. The discharge is attended by complete subsidence of the lumps, and an almost complete disappearance of the pain and sensitiveness. Under the rest which follows an application of the bandage the whole thing usually clears up within from twenty-four to forty-eight hours. If this inspissation of milk in the ducts is neglected it however rapidly extends, and if it is still left untreated the formation of pus occurs as in other varieties.

The natural history of the inspissation form of threatened abscess is that of sudden enlargement attended by pain and elevation of temperature. The prognosis of this form is good, under treatment.

*Phlegmon.*— The second form I believe to be the ordinary surgical phlegmon. There is usually, if not invariably, a cracked nipple, or a pimple in the areola, at the place of entrance of the poison into the ordinary lymphatics of the breast. These cases are characterized by comparatively little pain and tenderness, (pain, as you know, is usually symptomatic of distention, the connective tissue of the breast is very loose, and consequently there is not much pain in this variety). The elevation of temperature is slower and more gradual, and often in a fully developed abscess there is but a very slight pyrexia. There is marked reddening of the skin over the affected region, the outline of which is shaped like a piece of pie, as in the case you saw in the ward. The natural history of this form of threatened abscess is that of insidious onset. The prognosis is bad, because we cannot remove the cause. In this variety the use of massage or of any mechanical meddling is harmful. The treatment should be conducted upon ordinary surgical principles. The case in the ward I now believe to be due to this cause and not to inspissation of the milk in the ducts. Therefore, massage was not given after the first day.

*Treatment.*—Of the two forms of threatened trouble in the breast, we readily gather that inspissation is to be treated throughout by abstinence from nursing, rest in bed, massage and the bandage. I say throughout, because when a case of inspissation has been so neglected that the inflammation has got outside of the ducts, it becomes a case of phlegmon and must be so treated. The other form is to be treated during the early stages by ice and by surgical rest, obtained by means of the bandage and by keeping the patient in bed; and during the later stages by poultices.

When we have reason to believe an abscess has formed, either form must be treated by the knife. In cases which have gone on in an unfavorable way, it is always better to make an unnecessary incision than to let the breast open spontaneously, because breasts which open spontaneously almost never run a short course, while those which are treated by early incisions are usually healed within ten days or a fortnight.

OPERATIVE TREATMENT OF MAMMARY ABSCESS.

When a breast has refused to get better for from five to six, or at the outside, ten days, according to the acuteness of the case, and when a hard phlegmonous lump surrounded by edematous material which is getting worse can be felt, do not wait for a soft spot to appear in the centre, but make an exploratory incision early.

The technique of the operation is of the very greatest importance. In the first place, absolute asepsis is necessary. The skin of the breast should be disinfected as it would be for a celiotomy, that is, first scrubbed with soap and water, then sopped with permanganate of potash, then cleaned with oxalic acid, and finally scrubbed with a nail-brush and corrosive. The hands and instruments should be treated with the same care.

An extremely important point in the operation is that the lacteal ducts should not be divided or wounded. A duct which has been divided or torn across becomes obliterated, and the next time the breast fills up, that is, with the next child, the milk secreted by the acini which have been cut off collects and there will then be inspissation with the risk of another abscess.

The object of the operation is, then, to evacuate the pus without dividing any of the lacteal ducts. These ducts radiate towards the nipple and if the cut is made in this direction it is least likely to injure them; they, however, branch so frequently that if the operation were done with the knife throughout, there would be almost no chance of avoiding the ducts. The technique which I think should be pursued is as follows: The knife should make an incision radiating from the nipple, through the skin and subcutaneous tissue, and this cut should be long enough to permit the finger to pass through it easily. Then a director or large probe should be pushed down to the centre of the bunch and moved about until it finds the pus. Next a dilator should be run down on the director and the passage dilated. The finger should next be forced into the centre of the abscess, no cutting being done after the skin has been divided. The finger should be swept around everywhere to break down all the tissue that is soft enough to be broken down with any readiness.

Care must be taken to find all the pockets or side openings, which usually exist, and that the partitions between them are broken down; and any one of them which is at a distance from the incision must be exposed by a counter-opening. To make a counter-opening, take a long probe and carry it under the guidance of the finger to the farthest point of the pocket in question, then push it on until you see the point dimpling the skin upward; make a fresh skin incision at this point, dilate it, and put the finger in again, feeling about for fresh pockets as before.

After the counter-opening is made, the whole cavity should be syringed out with a corrosive-sublimate solution, 1–2,000, or perhaps better with a fifteen-volume solution of peroxide of hydrogen diluted with equal parts of water. The whole cavity should be puffed full and the process repeated until the solution comes out perfectly clear. Then put in rubber drainage-tubes, or gauze strips, so that each of the subsidiary cavities has direct drainage. If the pus is thick use rubber tubes, if it is thin you may use gauze. If rubber tubes are used, substitute gauze as soon as possible, because the pressure of the tubes may cause them to ulcerate through the neighboring ducts.

Having opened, disinfected, and drained, put on a sterile dressing, packing it all around the breast, and then bind the whole breast down against the ribs pretty firmly with an elastic gauze bandage, so that the walls of the cavity may have a chance of being brought together and of healing by first intention.

The wound should be redressed within twenty-four hours, and if you are compelled to leave rubber drainage-tubes in, dress again in from twenty-four to forty-eight hours more. All drainage should ordinarily be gotten rid of in a week or ten days. If this method be thoroughly carried out, I think it will yield uniformly good results.

## Original Articles.

### NEURASTHENIA.[1]

BY B. W. BARTLETT, M.D., ROWLEY, MASS.

NEURASTHENIA is a functional disease of the nervous system characterized principally by asthenia and exhaustion, and manifesting itself by headache, insomnia, cerebral depression, neuro-muscular enfeeblement; often by various symptoms referable to the spinal cord (rachialgia, spinal irritation) and by atonic gastro-intestinal dyspepsia. It is described by Beard as cerebral or spinal according as the predominant symptoms are referable to the higher or lower nerve centres.

ETIOLOGY.

Beginning with those causes which are least recognized, I would mention, first, a dry atmosphere. On this cause (to which, by the way, Dana attributes considerable weight) may be in part dependent the unusual prevalence of neurasthenia in our Northern climate. I would not venture much speculation as to how dry climates favor neurasthenia. The fact, I believe to be unquestioned. Extremes of heat and cold predispose to nervous debility. In the Southern climates, and in the small islands surrounded by water, marked extremes of temperature are uncommon, and we find less susceptibility to nervous excitability in the inhabitants of these climates as contrasted with the inhabitants of the Northern States, in which severe winters are followed by a high range of temperature during the summer months. The cold of the winter obliges residents to remain much of the time indoors, subjected to a dry, overheated atmosphere. On the other hand, the hot weather of summer is relaxing and does not tend to encourage athletic sports and pastimes. It is noteworthy in this connection, that in England where the climate is more moist and equable, athletic exercises can be indulged in during all seasons of the year. I regard these factors as predisposing to neurasthenia by their debilitating influence; and to faulty habits of eating and drinking may be attributed a similar predisposition. The principal and exciting causes are

[1] Read before the Essex North District Medical Society.

such as directly conduce to nerve tire and enfeeblement.

(1) *Prolonged Mental Application*, as to study or business, using up cerebral and nervous energy. This cause is especially operative when conjoined with dyspeptic troubles, and with insomnia. A man will endure very severe and very persistent mental strain if he can sleep well at night, and if the digestive organs are vigorous.

(2) *Worry*. There is one reason why our civilization so predisposes to neurasthenia — the present age is one of worry. Men and women are competing for a position for office, for honors, or else they are struggling to retain a position; hence there is constant anxiety and care. Many are engaged in commercial enterprises which give them great worry and little rest. Many a stock-gambler, many a speculator in "futures," has become a broken-down neurasthenic. Many merchants doing a large business give themselves too little sleep, and prematurely become nervous wrecks. How often among professional men, scholars, literary men, we hear complaints of tired limbs and aching eyes and heads! This is especially true of those who turn day into night and night into day. It is from the great army of the unrested that our modern neurasthenics are for the most part recruited.

(3) There are also *Emotional Causes*. Grief, disappointment, remorse, brooding over losses and crosses, promote wear and tear of brain and nerve.

(4) *Sexual Abuses and Onanism* enter for their share in the etiology of the disease.

(5) *Sudden Shocks* (as in railroad accidents), excessive physical exertion, excessive child-bearing, may produce neurasthenia. Nor must we omit reflex irritations, such as prostatic and urethral disease, mechanical displacements of the womb, disturbances of the stomach, intestine or liver, and ocular deficiencies, as hypermetropia and astigmatism. But many of the causes above mentioned are perhaps rather predisposing than exciting. Bouchard, who has written so admirably on auto-intoxication, advances the notion that neurasthenia in many cases (and notably in the gastric form) is due to auto-intoxication by ptomaines and even by leucomaines. He calls attention to the fact that toxines secreted by the animal cells (leucomaines) formed in circumstances of vitiated nutrition may produce nervous exhaustion of an intense and peculiarly intractable kind.

### SYMPTOMS.

Among the various symptoms on which authors dwell there is one which I should emphasize, namely, the tired feeling after exertion. I may, however, remark that this tired feeling is often lost in melancholia and other forms of insanity, as Dr. Cowles has so well pointed out in his Shattuck Lecture. All patients with whom I have had to do have complained of this symptom. They awake in the morning unrefreshed by their sleep, which is seldom or never unbroken. The attempt to walk, to do housework, to read, even in some cases to sit up, soon fatigue them. Muscular exercise causes aching in the back and limbs; reading, an aching in the eyes and headache. There is almost constantly a painful sense of lassitude, such as one experiences who is coming down with a fever. All these sensations are an expression of an ill-nourished condition of the nerves and nerve centres. Volition is weakened; the power to co-ordinate harmoniously the various higher cerebral activities is lessened, if not lost. Neurasthenics have difficulty in concentrating and keeping their attention on any subject for more than a brief time; their thoughts are continually wandering in accordance with the incoming flow of excitations which they are unable to inhibit. Of course, this is only an exaggerated degree of that weakness of voluntary control from which we all, except a few gifted minds, suffer more or less. The neurasthenic patient is also subject to headache, which often comes on spontaneously, often follows mental application. Sometimes the headache is almost continuous, though it is generally remittent; it is very likely to supervene after a period of rest. The painful paroxysms are accompanied sometimes by sensations of vertigo, tinnitus aurium, obnubilation of the sight and at times by hyperesthesia of the scalp (Beau). Charcot was so struck by a symptom in connection with this headache of neurasthenic patients, namely, a sensation of constriction about the head and temples, as though the head was compressed in a tight helmet, that he was in the habit of designating these patients by the name *galeati* (helmet-wearers). In my own cases I have not found headache to be so predominant a symptom — except as a sequel of mental application and excitement.

*Insomnia*.— This has been present in the majority of cases. Neurasthenic patients, as a rule, are poor sleepers. Some patients lie awake till a late hour of the night, and get only a morning nap; others go to sleep at once, but awake after a few hours and lie awake till morning. Most patients soon begin the use of some hypnotic to aid them in procuring sleep. An increase in the dose of the drug (whether it be opium, chloral, sulfonal) is soon necessitated. I believe with Folsom, that it is better to be satisfied with a few hours of natural sleep than to resort to the use of hypnotics. I do not believe that the benumbing effect which follows these drugs is a true rest to the brain cells. If any hypnotic must be administered, a dose of bromide, sulfonal or trional may do as little harm as anything, and under all circumstances, should be administered temporarily, great care being taken that the patient shall not become dependent on the drug. We have in static electricity an agent of great value in the treatment of insomnia. I certainly have obtained very favorable effects from Franklinization. The head-plate is used, and the electricity is conveyed in the form of breezy currents, which are agreeable and soothing. By means of the discharging head-electrode, the patient is also electrified through the clothes. The *séance* lasts about half an hour, and the patient often goes to bed prepared to go to sleep.

Before dismissing the subject of headache, I should say something about headaches from eye-strain. Defective accommodation seems to be a frequent cause of pain in the head in neurasthenic people. In my experience I have found it to be a severe pain, extending through the head from the eyes to the occipital region, and of an explosive character, recurring at short intervals after overwork of the eyes. Many children suffer from similar headaches till the hypermetropia or other eye-trouble is remedied by properly fitting glasses.

*Rachialgia, Backache*.— Neurasthenic patients frequently complain of pain in the back coming on after exertion, or without known cause, a pain which is elicited by pressure along the vertebral column. The

tender spots over the spine which characterize this condition, were formerly considered as pathognomonic of an individual morbid entity with definite syndrome, to which was given the name of "spinal irritation." The latter is not a disease apart, but simply an indication of exaggerated sensibility of the vertebral column, and belongs to the train of symptoms of *neurasthenia, with spinal form.* Spinal irritation is often attended with general cutaneous hyperesthesia; irritability of the breasts, ovaries and womb in women; fleeting pains of a neuralgic type in various parts of the body; a rapid or slow pulse, which fluctuates widely during periods of excitement or fatigue; excessive perspiration of the feet and hands; muscular twitchings; chilliness; creeping sensations along the spine; itching of the skin; weakness of the bladder and rectum; and other symptoms of disordered and perverted innervation which Beard has so well described.

*Aversion for Fluids.* — The neurasthenics are, I believe, proverbial for their dislike for liquids, and usually this condition has lasted so long that there is positive deficiency of water in the economy. The skin covering the body becomes dry, if not scaly. The urine is scanty to a high degree, some patients scarcely voiding four ounces in twenty-four hours. The tongue and mouth are dry; in fact, the whole alimentary canal loses its natural moisture. The blood contains less than the normal proportion of water, and this I believe in a measure accounts for the deficiency of the secretions, and the constipation.

*Dyspepsia.*— All the varieties of dyspepsia may be met in the neurasthenic. Mathieu, who has written an able treatise on neurasthenia emphasizes the dyspeptic troubles in this disease. He also shows the strong affiliation which exists between the so-called essential dyspepsia and neurasthenia; in his estimation, every dyspeptic is a neurasthenic; he thinks, moreover, that neurasthenia without some degree of dyspepsia is a very rare event. He distinguishes three forms of nervous dyspepsia: (1) Neuro-motor dyspepsia, with or without hydrochloric deficiency; (2) hydrochloric excess; (3) hydrochloric deficiency and permanent gastric stasis, with or without organic hyperacidity. A large proportion of these dyspeptics have dilated stomachs, and suffer from morbid fermentations which give rise to toxic ptomaines; the latter are absorbed, and injuriously affect the nerve centres, possibly (as Bouchard thinks) causing the depression of spirits, the languor and hebitude and other nervous disorders of which the victims of gastric neurasthenia complain.

*Vertigo.*— A frequent symptom of neurasthenia, which seems in most cases to be linked to the dyspepsia and due to the auto-intoxication above mentioned, is vertigo. Neurasthenic patients are frequently dizzy when they are hungry, and along with the vertigo there may be a state of partial nausea. Others are dizzy after eating; the face becomes turgid and flushed; the head feels heavy; the mental faculties are torpid; if the patient attempts to walk, he totters like a drunken person. The exact pathogeny of this form is not known.

*Melancholia.*— No one has set forth more clearly than Dr. Edward Cowles, of the McLean Asylum, the relationship of neurasthenia to certain forms of insanity, and especially to melancholia, which seems to derive its being from a neurasthenic condition. He has shown that there is a definite gradation from the psychical depression which characterizes neurasthenia to true melancholia; in fact, every melancholic patient is a neurasthenic.

### TREATMENT.

The treatment of neurasthenia comprises seclusion, rest, feeding, massage and electricity. Seclusion is indispensable in order that the patient may have freedom from care, and sequestration from the injurious home environment, where an injudicious sympathy may do much to foster a chronic invalidism. Again, seclusion enables the patient to be wholly under the control of the physician, a matter of vital importance, for there are no set rules of treatment for restoring these women to health. Each case stands by itself; each case is a study; each has an individuality to which the medical treatment must be adapted. Dr. S. Weir Mitchell first demonstrated the value of rest, with forced feeding, in the treatment of neurasthenia. The question of nutrition is of vital importance, because these patients are either wholly without appetite, or they reject wholesome food. Their nervous system seems to undergo waste in excess of repair, and they are always menaced with complete mental break-down. By beginning the treatment with iron, with malt and with a diet of skimmed milk, usually after a week's time the patient begins to crave solid food. Fixed rations of wholesome food at fixed hours are now given, together with as much new milk between meals as the patient can possibly digest; and it is wonderful how much food a delicate woman can soon dispose of. A goblet of milk is always given at bedtime to render the stomach hyperemic, and thus decongest the brain and promote sleep. The therapeutic effects of massage and electricity on the circulation are very striking in nerve exhaustion. Massage exercises the muscles without any effort of volition, and therefore without expenditure of nerve force. Electricity does the same This is very important in the treatment, for all voluntary muscle work is nerve work, and the nerve capital in these cases is too small to be drawn upon. Again, both massage and electricity raise the body temperature, stimulate the nervous system, promote the secretions, and increase the peristaltic action of the bowels. Static electricity, as a general tonic and also as a stimulant to depressed nervous functions, seems to be particularly of service. I employ this form of electricity constantly in the treatment of neurasthenia with marked benefit. Sittings of from ten to twenty minutes give remarkable improvement in dyspepsia and habitual constipation. The electrical current also soothes, quiets the nerves, and promotes sleep. Among the internal remedies are the bromides of sodium and potassium, ergot, the triple valerinates, phosphorus, strychnia and arsenic. The usefulness of liquids internally has been alluded to. I have a word to say about hot water as a beverage. A cupful should be drank one hour and a half before each meal, with the temperature as high as it can be borne. It increases downward peristalis, it stimulates the secretion of urine and alters its character very rapidly. It produces a gentle perspiration and a sense of warmth in the skin. It relieves dyspeptic symptoms. Haig has suggested that the beneficial results of giving large quantities of milk might be partially due to the percentage of water contained in milk and the washing out from the blood of all toxic material.

I may, in this connection, be permitted to allude to a patient, Mr. A. B., who came to my Home some six months ago for treatment: The case has several interesting features. First, there was a close resemblance to some degenerative disease of the brain and spinal cord, as dementia with tabes dorsalis or chronic myelitis. Second, there was marked prominence of symptoms the result of ocular defects. The patient was a man twenty-eight years old, whose mother always suffered from severe headaches, and who died in her second confinement. Two maternal aunts were tuberculous. The father was neuropathic. A. B. was robust from boyhood, but cannot remember when he did not suffer from headache. He was fitted for college at the age of seventeen, but was unable to pursue his studies further. He was of good habits; married at twenty, and became a trader; was kept constantly within doors at his business; was successful and made money. A sedentary life and devotion to business broke him down. The headaches increased in frequency and were so severe as to require frequent injections of morphia for their relief. By the aid of powerful hypnotics he was able to get some sleep. He was unable to exercise his eyes on account of the aggravated cephalalgia; and on account of some degree of photophobia, he wore a silk protector, in spite of which strong light was painful to him. Mentally he was much depressed, and suffered from both delusions and hallucinations. His method of speech was slow and hesitating; he was unable to think of the right word to express his ideas (amnesic aphasia), and the ideas themselves were formed with great difficulty. He had but little control over his upper extremities; because of the twitching of the muscles he was unable to grasp or hold articles in his hands firmly. He was ataxic in his gait. There was pain and tenderness over the spine. Sensation was normal and so was control of the sphincters. There was complete loss of sexual tone, but no atrophy of the testicles.

During his three years of sickness he had been treated for rheumatism and various cerebral and spinal diseases. When he came to the Home I was led to give attention to the condition of the eyes, and found the ocular defects most marked. There was pronounced astigmatism and asthenopia. The disorder of refraction had probably existed from birth, and the long-continued muscular strain, for both recti interni were weak, allowing a marked divergence of the eyes, had so irritated the nervous system as to cause the hyperemia of the brain and spinal cord, which, in turn, had produced such woful results. To relieve this eye-strain, I employed prisms worn constantly with their bases inward. I then made use of large prisms held between my fingers before the eyes with their bases outward, for ten minutes at a time twice a day. This gave the eyes a gymnastic exercise. The morphia was at once dropped from twenty grains per day to one and a half grains at night; and after ten days it was wholly discontinued. He was taking thirty grains of sulfonal every night to procure sleep, and this was discontinued at once; and I gave instead bromo-soda, bromo-caffeine, elixir of the valerinate of ammonia, etc. A hot tub-bath was given every third evening. I also ordered a hot sponge-bath to the whole spine every night, together with static insulation; and heavy sparks drawn from the back of the neck sufficed to relieve all pain and procure refreshing sleep every night. We gave the patient, the first thing in the morning a large cup of strong coffee without sugar or milk; then after one hour of massage and dry cupping along the whole length of the spine, he was allowed a breakfast of some light, farinaceous food with malt extract and five drops of Freligh's tonic. Three times a day, about an hour after meals, he had a tumbler of warm milk with fifteen grains of potassium iodide. The dinner and supper were eaten with the family, beef and chicken being allowed *ad libitum*, and the malt and tonic medicine being given after meals. Improvement began at once. He could soon use his eyes without fatigue or pain. The headaches gradually went away, the mind became clear, and the aphasia disappeared as the improvement continued. He would now sleep seven or eight hours every night without hypnotics. Exercise was regularly taken at the gymnasium, all excessive bodily movements being avoided on account of the spinal asthenia. He can now walk five or six miles a day, and has nearly regained his usual health. He has recovered the use of his arms and hands and plays the piano without difficulty. So complete is the restoration, that he will soon be able to return to his business.

## SURGICAL TREATMENT OF PANCREATITIS, WITH A CASE.[1]

BY J. W. ELLIOT, M.D.

MUCH attention has been given to the cysts of the pancreas, and many cases have been reported as cured by operation. The hope that surgery will be useful in cases of inflammation of the pancreas is based on the following considerations:

(1) The presence of scars in the pancreas found at autopsies shows that a limited pancreatitis may recover. The celebrated case of Trafoyer reported by Chiari,[2] where after an illness of three or four weeks a slough was discharged from the bowels, which Rokitansky recognized as the sequestrated pancreas, is evidence in the same direction.

(2) Experiments on dogs by Mehring and Minkowski, show that part of the pancreas may be removed without impairment of health, whereas if the whole gland is removed a permanent diabetes is produced and the animal dies.

In man the tail of the pancreas has been successfully removed in one or more cases. Senn refers to a case reported by Kleberg,[3] where the pancreas protruded from an abdominal stab-wound. The protruding organ was ligated at its base and cut off; the part removed was examined microscopically and found to be a pancreas. The patient recovered.

(3) Several autopsies have revealed an abscess which could have been operated on with relief, and finally Körte[4] reports a recovery after operation in a case of suppurating pancreatitis.

Dr. Fitz,[5] in his now classical monograph, divides pancreatitis into three varieties: hemorrhagic, suppurative and gangrenous. In the recorded cases of hemorrhagic pancreatitis (exclusive of traumatic cases), death has usually followed the first symptoms so quickly that surgical intervention would have been impossible. It is therefore the suppurative, and possibly the gangrenous, pancreatitis, which should properly claim the attention of surgeons at this time. I therefore propose to study the signs and locations of the inflammation with reference to the possibility of recognizing and draining abscesses and thereby limiting the extension of the process.

Dr. Fitz gives the following admirable account of the symptoms based on an analysis of 22 cases:

"The cases of acute, suppurative pancreatitis usually began suddenly, with severe, generally intense, gastric, epigastric or abdominal pain, vomiting, and sometimes great prostration. The vomiting might be incessant and distressing, or it might give temporary relief to the pain. The ejected fluid was sometimes stringy and brown. The bowels were usually constipated, although diarrhea might occur within the first twenty-four hours. This latter symptom was not fre-

[1] Read before the Boston Society for Medical Improvement, January 21, 1895.
[2] Wiener med. Woch., 1880, xxx, p. 139.
[3] Langenbeck's Archiv. für Chir., ix, p. 525.
[4] Archiv. klin. Chir., 1894.
[5] The Middleton-Goldsmith Lecture, Boston, 1889.

quent at a later date of the disease. Fever, usually slight, was the next conspicuous symptom, being manifested about the third day. At the same time the upper abdomen, especially the epigastrium, was likely to become distended, tympanitic and sensitive. Hiccough, sometimes quite obstinate, was not infrequent in this stage, and occasional chills were met with. The abdomen in general then became moderately swollen, tense and tympanitic."

When death occurred in the course of a week or more, he sometimes found the pancreas studded with hundreds of small abscesses.

"An acute, suppurative pancreatitis, however, very rarely terminates at this early date. The symptoms already described may persist for three or four weeks, with progressive emaciation and debility, and death occur from exhaustion. Under such circumstances the single abscess has been found surrounded with adhesions."

The local condition, and especially the presence of a tumor, is, of course, a most important consideration for the surgeon. It is also of immense importance in the diagnosis. In the early cases the presence of a tumor was rarely noted.

In the table of cases collected by Dr. Fitz up to 1889, the presence of a tumor is recorded in only one case. According to Balt, as quoted by Körte, Lusana, up to 1882, was the only one who had succeeded in palpating the swollen gland. My small experience does not accord with these facts, as in two out of three cases which have come under my observation a well-defined tumor has been present, and in the case here reported, the tumor corresponded exactly to the position of the pancreas and led at once to a correct diagnosis. Körte,[6] in a recent article, reports three cases where a tumor was present; and I am indebted to him for a part of what follows.

As the tumor in these cases usually represents a pus collection, we can profit here by a recapitulation of the results of autopsies bearing on this point: The pus is almost always retro-peritoneal in the early stages, and not infrequently remains so to the end. In the traumatic cases the peritoneum may be ruptured at the start, in which case the inflammation may begin in the omental bursa.

The inflammatory process may start at any point in the pancreas. If it is most intense at the tail, a pus-cavity may form in the left upper abdomen near the spleen or kidney. If the process attacks the head of the pancreas, the pus-cavity usually breaks into the omental bursa and becomes encapsuled there. At times the para-pancreatic tissue is involved and the whole gland is surrounded by a pus-cavity which extends from the duodenum to the spleen.

The pus may break into the general peritoneal cavity or into the duodenum, but it more commonly burrows down behind the peritoneum, and is often found in the mesocolon as low as the pelvis, on either the right or left side. It may also extend into the root of the mesentery.

In regard to the positions of the tumors actually observed, Musser[7] noticed an ill-defined epigastric tumor, which was found at the autopsy to represent a pus-cavity bounded by the posterior wall of the stomach in front, by the pancreas, duodenum and transverse colon below, and by the peritoneum above and behind. Körte cites four cases beside his own in which a tumor was observed. In two of these cases the tumor was behind the stomach, and in two it was in the left abdomen just below the ribs.

Körte found, in his first case, ten days after the disease began, "a resistance in the left epigastric region which extended to the left loin." He explored this tumor through a cut in the loin, and found it to be a large abscess surrounding a sloughing pancreas, which he removed. At the autopsy a large abscess was found between the stomach, spleen, diaphragm and kidney.

In his second case, a month after the first symptoms, which were characteristic, he found an evidently fluctuating resistance in the outer part of the left abdomen, dull on percussion. This was explored by an extra-peritoneal incision through the loin, and proved to be a large retro-peritoneal abscess which extended from the pelvis up to the kidney and inwards to the spine. A sound could be passed up behind the stomach. This patient recovered.

In his third case, on the seventh day of the disease, he felt a swelling on the left side, deep in towards the loin, and fifteen days later a tumor was felt just below the ziphoid cartilage behind the stomach. This was found by an operation to be an abscess between the stomach, colon and spine. The patient died.

My first case was seen on the fifth day of the attack. There was then present a prominence in the epigastrium which felt like a doughy tumor. This extended, with ill-defined borders, under the ribs on the left side, to the loin; it could be plainly felt in the left upper abdomen. The percussion note was resonant. This tumor was explored by laparotomy, and proved to be a necrotic pancreas with an para-pancreatic abscess running the whole length of the organ.

The second case which came under my observation was seen by the courtesy of Dr. J. C. Warren in his wards at the hospital three and one half days after the first symptoms. A hard tumor was easily felt on the right side, just below the liver. This was found at the autopsy to be the root of the mesentery filled with blood, pus and a hard inflammatory cake. The inflammatory process had also extended into the mesocolon and to the kidneys on both sides.

I saw a third case in consultation with Drs. Minot and Cutler: here the probable diagnosis was made on seeing the characteristic epigastric swelling although no tumor was found.

Here we have ten cases with accurate descriptions of tumors. In three the tumor was epigastric. In three it was epigastric, extending along the ribs toward the left side. In three it was in the left upper abdomen, below the ribs. In one case it was on the right side, below the liver. These tumors were observed from three and a half days to one month after the first symptoms.

From these few cases one can see at once that there are three, and perhaps four, typical forms of tumors which will often be found in these cases: (1) An epigastric tumor behind the stomach, due to pus in the omental bursa; (2) A tumor running from the epigastrium to the spleen, just below the ribs, due to an enlarged pancreas or a para-pancreatic abscess; (3) burrowing of a retro-peritoneal pancreatic abscess may give rise to a tumor in the left loin, or more rarely on the right side below the liver.

These tumors will sometimes be difficult or impos-

[6] Archiv. für klin. Chir., 1894, Heft iv.
[7] American Journal Medical Sciences, 1886, N. S., xci, p. 449.

sible to feel on account of a tympanitic and painful condition of the abdomen, also on account of a fat abdominal wall. As the inflammation which causes them is retro-peritoneal, they will usually be indistinct and vague to the touch, and they will also often be tympanitic on percussion, as the bowel may lie over them. Such tumors will best be found by careful and skilful palpation. Inflation of the stomach and transverse colon is useful in determining whether a tumor is in front or behind those organs. I venture to predict that the presence of a tumor will be noted much oftener in the future.

Senn, I believe, was the first to seriously suggest surgical treatment for pancreatitis, although he had done no operation. As the matter stands to-day, there seems to be good ground for surgical interference in proper cases; but only one successful case has been reported. This was done by Körte, and has already been referred to. A second case was reported by Pearce Gould [1] as a cyst of the pancreas. This case is considered by Körte, on account of the acute symptoms and the character of the fluid found, to have been a case of suppurative, and not a cyst pancreatitis. Lloyd calls attention to the probability of the traumatic cases of so-called pancreatic cysts being effusions into the lesser omental cavity, and not cysts of the pancreas. Fitz [2] says that "these effusions may represent the extension from the pancreas of an acute inflammatory process to the peritoneal covering, which is the posterior wall of the lesser omental cavity." This point of view would transfer some of the successful pancreatic cyst operations to pancreatitis operations, and thereby make a better showing for surgical interference in pancreatitis. My own opinion is that the traumatic cases should neither be classed as cysts nor as pancreatitis; but as injuries of the pancreas. They, therefore, do not belong to the subject of this paper. Cases of hemorrhage of the pancreas due to an injury have repeatedly been operated on with success.

The possibility of recovery, even when fat necrosis is present, is shown by a case of Osler's referred to by Fitz, where an exploratory operation was done for intestinal obstruction. No obstruction was found; but there was a dense, thick, indurated mass in the region of the pancreas and at the root of the mesentery, and foci of fat necrosis were found in the mesentery and omentum. The patient recovered.

All the authorities — Fitz, Senn and Körte — agree that the acute stage is not a favorable time to operate. This is certainly true when the patient is more or less in a state of collapse, as is often the case. It seems to me, however, not impossible that with an early exploratory incision the diseased part of the pancreas might be removed, or that the disease might be limited by gauze packing.

At present our attention is directed to opening pus-cavities and limiting their extension. If pus has collected in the omental bursa, the incision should be made in the middle line from the ziphoid cartilage down. The bursa should be opened by tearing through the omentum between the stomach and transverse colon. The omentum can be stitched to the abdominal wall before opening, and in this way the abscess-cavity is shut off from the peritoneal cavity. If the abscess-cavity extends along the pancreas, a counter-opening should be made in the lumbar region just below the twelfth rib. When the pus is evidently retro-peritoneal and burrowing in the lumbar region or in the mesocolon, the opening should be made in the back, as for extirpation of the kidney, then with a blunt dissector the pus-cavity should be searched for without opening the peritoneum.

[1] London Lancet, August 9, 1891.
[2] Pepper's Theory and Practice of Medicine.

Case I. Gangrene of the pancreas, with fat necrosis; operation; death.

The patient, a large and fat man, aged fifty-one, entered the Massachusetts General Hospital, August 1, 1894. He had been well and strong, but had suffered more or less from rheumatism. Five days before entrance he was suddenly taken with an attack of severe vomiting; a few minutes later he felt a hard pain in the left side, which pain had continued ever since. At first it was more general, but later it became localized near the spine of the ilium. He had taken a dozen or more quarter-grain morphia suppositories. He had vomited several times each day, and the bowels had been moved by enemata. There had been no chills nor sweating.

Examination of the abdomen showed a dome-shaped prominence in the epigastrium, which felt like a doughy tumor. This mass extended along the border of the ribs on the left side to a point just above the superior spine of the ilium. Its borders were not at all sharply defined, and it was resonant on percussion. The outer end was decidedly tender. The urine was normal, no albumin or sugar being present. The temperature was 100.5°, pulse 100; tongue coated and breath foul. The diagnosis of pancreatitis was made. He slept fairly well that night without morphia; taking milk and lime-water without nausea or vomiting, and good movements of the bowels followed an enema; but he had the expression of a very sick person.

On August 2d, Drs. Richardson and Mixter saw him in consultation, agreed to the diagnosis, and advised operation.

*Operation.*— A four-inch incision was made in the median line over the most prominent part of the tumor. The omentum was found much thickened and studded with white spots of fat necrosis. Two openings were made through the omentum — one straight down in the median line, which gave no result; and one down to the left into the doughy tumor to a point corresponding to about the middle of the pancreas. From this opening came a quantity of greasy, bloody fluid. Both openings bled freely, and were packed with gauze.

On the following day the gauze was removed, and six ounces of brown, muddy fluid of slightly foul odor, ran out. A drainage-tube was placed, and the fluid continued oozing out. On examination, Dr. Whitney found that it contained clumps of pus-cells, altered blood corpuscles, free fat, and bacteria in great abundance.

The patient died in three days.

At the autopsy Dr. Whitney found a disseminated fat necrosis, most marked in the region of the pancreas, and gangrene of the pancreas. The following is his description of that organ: "Lying at the posterior part of the mass removed was the pancreas imbedded in slaty, discolored necrotic fat tissue. On dissecting it out, it was necrotic for its greater part. Only a portion of the tail and of the head retained any semblance of normal structure, and these were

sharply separated from the dirty, slaty-colored structureless mass. There were two openings from the ducts, which were normal. The splenic artery was thickened and its coats slightly roughened. The splenic veins contained a recent thrombus continuous with thrombi in the pancreatic veins. There was no evidence of any recent hemorrhage. The spleen was increased one-half in size, firm and dark-red in color.

## HEMORRHAGIC PANCREATITIS.[1]

BY ELBRIDGE G. CUTLER, M.D.

Case I. On February 1, 1893, I first saw Mrs. A. H. H., aged about fifty-eight, and obtained the following history: She has had severe attacks of indigestion in the past fifteen years several times, keeping her in bed a month or six weeks with each attack. The attacks have been preceded by constipation, anorexia and insomnia. Vomiting speedily follows and lasts two or three days, all food being ejected and almost all the liquid taken as well. It is impossible to trace the trouble to any one thing. When the stomach gives out it refuses everything. Never any chills, never any tenderness about the abdomen anywhere. Once she had an attack followed by jaundice, lasting two weeks. Has had no attack in the last two years. Says she has had no good movements of the bowels for a month, that is, no large, fully formed ones. "It seems as if at one place it passes through a very narrow passage," as the patient expressed it, pointing at the same time to the left side of the abdomen low down. She has frequently been called up to the water-closet in the morning by gas in the abdomen, but has never had to go several times before being relieved. There has never been slime or blood with the stools. She has lost ground in the last two weeks, and for six days has had more or less pain in the middle of the back.

The patient was short and rather stout, of dark complexion but of good fresh color. Physical examination of the heart and lungs was negative. The abdomen was full, moderately soft, no tenderness anywhere and normally tympanitic. The hepatic area of dulness was not increased. Spleen area normal. Urine healthy. Family history unimportant. With a laxative pill and regulated diet she did very well indeed till May 4th, when she caught a severe cold. She was kept in bed by it for four or five days, when she was able to be up and about.

On May 15th the cough recurred, and gave rise to abdominal pain on the right, just below the ribs, with vomiting two times. There was no tenderness or distention of the abdomen. All food distressed her. She was better the next day, and remained well till about the 6th of June, when I saw her again because food began to disagree, and she had constant pain in the right mammillary line just under the ribs. A single subcutaneous injection of morphia, followed by Carlsbad salts, kept her in comfort for four days. For some time the stools had been screened in vain, looking for gall-stones. On the 10th pain began again; on the 12th it was acute with occasional vomiting, and twice there were chills followed by cold sweats. As she did not improve and morphia was frequently necessary, I asked for surgical assistance, which was deferred. The next day there was jaundice; the abdomen became distended, especially in the upper part; the patient looked badly, vomited several times, had fever of 102° F. and a weak pulse. There was a slight trace of albumin in the urine; no sugar; considerable bile pigment. That night the patient was a little delirious. There was profuse sweating after sleep. Pain in the epigastrium, with tenderness, became very marked; and Drs. F. Minot and J. W. Elliot saw her with me in consultation. At this time the abdomen had become very much distended, was tender and hard; the pulse was weak and thready; the appearance very bad; vomiting of a black liquid in no large quantity was of frequent occurrence. The diagnosis of gall-stones, with probable secondary disease of the pancreas and peritonitis, was concurred in, and non-interference advised. The patient continued to fail and died next day.

At autopsy there was found a bloody fluid in the abdominal cavity, with peritonitis; very numerous spots of fat necrosis, chiefly about the region of the pancreas (some of them were seen by Dr. Whitney); and an enlarged pancreas surrounded and infiltrated with blood in its middle portion. The liver showed indistinct acini. In the gall-bladder were a number of faceted small stones; one was found at the outlet of the common duct, and one nearly at the end of the cystic duct. Further examination was not made.

Case II. J. H., fifty-two, married, born in Ireland and living in Boston, entered the Massachusetts General Hospital, September 26, 1894, with the following history: Father dead of gravel; mother and four sisters alive and well. Patient had scarlet fever at seven, and measles and small-pox at ten. Twenty years ago fell and hurt her back, and has had pain and lameness there occasionally since. Dyspnea also for ten years, worse of late. Dizziness, blurred vision, and occasional faintness after exertion. No swelling of feet or abdomen. Paroxysms of coughing when suffering from dyspnea, but no steady cough. More or less "stomach trouble" for five years, especially when overtired. An "all-gone" feeling after meals, relieved by vomiting. Less urine than formerly. Bowels regular.

Her present illness began with a headache on the morning of the 23d. On the 24th, after a breakfast of a pear and some bread, had severe cramp in the stomach, and vomited. Felt better some hours later, and went down town, where she vomited again twice. Later, abdominal cramps again, with continued vomiting and great weakness. Vomited on the night of the 24th and on the 25th. Had abdominal cramps on the 26th, and vomited twice. Pain worse over the epigastrium and both flanks. Tightness in the chest and dyspnea since the 24th.

The patient was very large and fat. Alcoholic look; dull, cyanotic countenance. Respirations rapid and labored. No cough. Heart slightly enlarged to left, slight systolic murmur. Harsh respiration throughout chest, moist râles at bases. Abdomen much distended, especially in upper part; very tense, particularly in epigastrium, about umbilicus and in the right iliac region. Marked tenderness over epigastric and umbilical regions; not extreme, however. Vaginal and rectal examinations negative. Edema of abdominal and thoracic walls, none of legs. Pulse 112, respiration 47, temperature 100.8°. Ordered liquids;

[1] Read before the Boston Society for Medical Improvement, January 21, 1895.

strychnia, one-fortieth of a grain every four hours; whiskey, half an ounce every two hours.

September 27th. Pulse more rapid and weak. First cardiac sound short. More râles in lungs. Abdomen not so distended or tense, no tenderness. Takes liquids well, no vomiting. No cough; labored breathing; much cyanoses. No pain. No result from an enema (the bowels had not moved). Fifteen ounces of urine in twenty-four hours; color, high; acid; specific gravity, 1.032; one-fifth per cent. of albumin; sugar, 6.1 per cent.; sediment contained degenerated renal cells, hyaline and granular casts of both diameters, with renal cells adherent; no blood; Diazo primary and secondary. Indican increased. Tincture of digitalis, ten minims every four hours.

September 28th. Last night, very cold hands and feet, marked cyanosis. Seen by Dr. S. J. Mixter, who advised non-interference, though he considered it an abdominal case. Much weaker this morning. Diffuse, moist râles through both chests. Abdomen less full and less tender. Vomited once last night and again this afternoon — dark, hemorrhagic-looking stuff. Some pain in chest, none in abdomen. Delirious last night, and noisy to-night; seems like alcoholic delirium. Out of bed twice last night. Suds and glycerine enema gave a normal-looking movement.

September 29th. Sent to a private room on account of noise last night. Refused all medicine till twelve. Restless and noisy. Pulse failed gradually, and patient died at 4.40 this morning.

The autopsy was performed by Dr. W. F. Whitney, eight hours after death. Rigor mortis present. Body well nourished. Excessive development of adipose tissue. Marked lividity of face and dependent portions of the body. Head not opened.

Thorax: Pleural cavities contained a little reddish fluid (serous), surfaces normal. Lungs retracted, dark-red in patches, collapsed, of a bluish-red color; on section, a little frothy sputa came from cut surface of uncollapsed portions. Pericardium: Surfaces normal. Cavity contains a normal amount of straw-colored fluid. Heart large, covered with abundant fat tissue; muscular substance pale, somewhat opaque; valves and cavities normal. Aorta of normal size, intima covered with slightly raised, opaque, irregular, yellow patches.

Abdomen: Peritoneum cavity contained a moderate amount of blood-stained serous fluid. Surfaces without any adhesions and in general smooth, but everywhere marked by white opaque spots from the size of a pin's head to that of a split pea, very slightly raised above the surface, and on section lying wholly within the fat tissue. These were found everywhere upon the subperitoneal fat, the omentum, the mesentery and in the fat about the upper surface of the diaphragm and mediastrium. These changes were most extensive in the fat about the pancreas and in the mesentery there. The pancreas itself was enlarged to about twice its normal size, firm, dry, of a dark blackish-red color, mottled by opaque yellowish-red patches. This appearance was throughout the entire organ. There was no evidence of normal structure anywhere. The splenic artery was of normal size, its internal coat slightly thickened, the openings of the pancreatic branches apparently normal. The splenic vein was normal; over a part of its wall was a recent, slightly adherent mass of fibrin and blood, only partly blocking up its lumen. There was very little clot in it. The pancreatic duct opened in the normal place, and was followed some distance into the organ; its walls were thin and smooth, and to the eye there was no evidence of any inflammatory condition.

Stomach and intestines presented no marked changes.

Liver was of normal size; the section-surface was pale, slightly opaque, lobular, outlines indistinct. Microscopic examination showed the cells infiltrated with fat drops and quite granular.

Spleen slightly increased in size, very soft; on section, structure not to be made out from the almost diffluent character of the pulp, which was of a pale-reddish color.

Kidneys of normal size; capsule stripped off easily; cortex and pyramids easily differentiated, the former of an opaque, grayish color. Microscopic examination showed the cells of the convoluted tubes filled with small glistening granules.

Uterus and adnexa presented nothing abnormal.

Cultures from liver and spleen showed the bacillus coli communis.

Diagnosis: Acute hemorrhagic pancreatitis, disseminated fat necrosis, acute splenic hyperplasia, granular degeneration of heart, liver and kidneys.

The symptoms of hemorrhagic pancreatitis are oftentimes suggestive rather than distinctive. The most common symptom is pain in the upper abdominal region, which may be very intense and is increased by pressure and deep inspiration. Accessory symptoms are nausea, vomiting, loss of appetite, irregularity of the stools (sometimes constipation, at other times diarrhea), and distention of the gastric region. If the case is about to terminate fatally, very soon there is much loss of strength, collapse supervenes, and the patient dies. The temperature may be normal, only a little elevated, or it may at times be high. The most common complication is peritonitis. Icterus, as in the first of my cases, is more seldom seen. Sometimes the symptoms are those of ileus; and, according to Eichhorst, if the pancreas is enlarged, it may press on the intestine and thus make it impassable. Sugar in the urine has been found in a few instances, as in the second of the above cases; and, as a symptom, it is with our present knowledge merely suggestive.

A probable diagnosis can be made with some certainty only when diseases of the stomach, liver and intestine can be excluded. In the majority of cases hemorrhagic pancreatitis remains either undetected or simply considered in the enumeration of the possible conditions. No material addition to our knowledge of the disease has been made since the publication of Fitz's admirable paper in 1889.

## SOME METHODS OF CHEST EXAMINATION SUPPLEMENTARY TO AUSCULTATION AND PERCUSSION.[1]

BY EDWARD O. OTIS, M.D., BOSTON,

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Experience gained in the examination of over fifteen hundred chests of presumably well persons has convinced me that the means of determining the condition of the lungs other than auscultation and percussion are exceedingly valuable, and add not inconsider-

[1] Read before the Boston Society for Medical Improvement, January 7, 1895.

ably to the knowledge obtained by the latter methods. Moreover, they are applicable to most cases which consult us for suspected lung trouble.

The means I refer to are in use, some of them at least, in the gymnasiums where physical examinations are made, though probably not exactly with the same end in view which guided me in my investigations. They are:

Spirometry: the measure of the lung capacity, as well as the measure of the ordinary amount of air in the lungs.

Pneumatometry: the measure of the elastic power of the lungs, or strength of the lung tissue.

Thoracometry: the measure of the circumference and diameters of the chest — depth and breadth — both in natural and full inspiration, and tracings of the contour of the chests, also in natural and full inspiration.

These tests are of especial value in those incipient or suspected cases before we obtain any positive evidence of disease by auscultation and percussion. A class of cases in which any and all means of examination which will lead to a diagnosis are of especial value, for, as we all know, the earlier the diagnosis is made and the treatment begun, the better the prospect of arrest. Further, they naturally suggest a valuable means of treatment, namely, gymnastic exercise especially directed to chest and lung expansion.

The capacity of the lungs in health varies in the first place according to age, sex, and stature; and secondly, according to the height, width, and depth of chest, mobility of the chest walls, and also, which is of especial note, according as one has or has not been in the habit of fully expanding the lungs — practising breathing exercises. In 1,000 measurements of my own tabulation for an average height of 67 inches (170.2 centimetres) and an average age of 22.1 years, the average lung capacity was 240.6 cubic inches (3,944 cubic centimetres). In 8,000 measurements of Dr. Hitchcock, of Amherst College, for an average height of 67.9 inches (172.5 centimetres), and at an age of from seventeen to twenty-six years, the average lung capacity was 230 cubic inches (3,770 cubic centimetres). In 15,000 measurements of students, at about the same age as those tabulated by Dr. Hitchcock, collected by E. Hitchcock, Jr., of Cornell University, the average lung capacity was 236.6 cubic inches (3,880 cubic centimetres) for an average height of 67.8 inches (172.2 centimetres). I have also made from my own measurements of males from sixteen to forty years of age, averages of the lung capacity for heights from 66 to 72 inches, each average being the result of fifty observations, with the following results:

| Height. | Lung Capacity. | Average for each Inch or Centimetre in Height. |
|---|---|---|
| 66 to 67 inches, incl. 167.7 to 170.3 cms. | 231.62 cubic inches. 3,797 cubic cms. | 3.44+ cubic inches. 22.4 cubic cms. |
| 67 to 68 inches, incl. 170.3 to 172.8 cms. | 237.10 cubic inches. 3,903 cubic cms. | 3.46 cubic inches. 22.7 cubic cms. |
| 68 to 69 inches, incl. 172.8 to 175.4 cms. | 244.44 cubic inches. 4,007 cubic cms. | 3.5 cubic inches. 23.06 cubic cms. |
| 69 to 70 inches, incl. 175.4 to 177.9 cms. | 259.34 cubic inches. 4,250 cubic cms. | 3.66 cubic inches. 24.06 cubic cms. |
| 70 to 71 inches, incl. 177.9 to 180.5 cms. | 261.38 cubic inches. 4,284 cubic cms. | 3.64 cubic inches. 23.9 cubic cms. |
| 71 to 72 inches, incl. 180.5 to 183 cms. | 261.34 cubic inches. 4,284 cubic cms. | 3.5 cubic inches. 23.03 cubic cms. |
| General average . . . | | 3.52 cubic inches. 23.19 cubic cms. |

From this data we find that in males between sixteen and forty years of age for each inch in height, the lung capacity is 3.5 cubic inches or 22.5 to 23 cubic centimetres for each centimetre of height. From the observations of Hutchinson and Wintrich, Brehmer gives it as between 22 and 24 cubic centimetres for every centimetre in height, but 23 is a good working basis and sufficiently accurate.

For women we have the measurements of about 500 students taken at Mt. Holyoke and Wellesley Colleges by Dr. Colton and Miss Wood, which gives for an average height of 62.6 inches (159.1 centimetres), an average lung capacity of 145.8 cubic inches (2,390 cubic centimetres); and also 50 per cent. of 1,500 Wellesley students, the observations made by Miss Wood for a height of 63.2 inches (160.5 centimetres), giving a lung capacity of 150.3 cubic inches (2,447 cubic centimetres). The average age in each case was about nineteen years. From this we find that, with women, for every inch in height the lung capacity is about 2.3 cubic inches or 15 cubic centimetres for each centimetre. Brehmer makes it a little higher, between 16 and 17.5 cubic centimetres. Hutchinson found in his investigations, made many years ago, that the lung capacity varied from 174 cubic inches for a height of five feet to 262 cubic inches for a height of six, or for every inch of stature above five feet the lung capacity increased eight cubic inches. According to Waldenburg the lung capacity decreases after thirty and up to sixty years of age, nearly 1½ cubic inches per year of age. This I should doubt to be the case provided the individual continues the habit of deep breathing.

With the data then already given, knowing the height, we can estimate pretty nearly how much the lung capacity of each individual ought to be. If, on a spirometic test, it varies to any great extent from this, the man is either better or worse than we thought as to his chest expansive ability and lung capacity. If much below, either his method of respiration is faulty or his lungs are not normal. If the first supposition is true, the measurements of the circumference, depth and breadth of the chest in respose and full expansion will indicate this, for the difference of these three measurements under these two conditions of repose and expansion will be below the average, indicating insufficient mobility of the chest-walls.

Now, this may all happen in the latter case, namely, that the lungs are not normal and some of their tissue is disabled and thrown out of use, but we shall have the evidence which auscultation and percussion give us. If the evidence, however, from these tests is negative, and yet we have certain suspicious general symptoms, the failure of the spirometic test together with these measurements to come up to the average by a considerable degree, will, at least, make one suspicious as to the integrity of the lung tissue. I wish here incidentally to make an especial point upon the amount of air exhaled after an ordinary quiet inspiration, the way one generally breathes when one is thinking nothing about it. This, it seems to me, is a valuable bit of evidence, as showing how successfully and normally one is performing the act of respiration.

In examining patients with incipient pulmonary tuberculosis, the lung capacity was found to be below, and generally much so, the average. According to Waldenburg from 10 to 70 per cent. To illustrate: E. C., of medium stature, in fair general condition as

to strength, appetite, digestion, etc., and attending daily to business, was found to have a small area of tubercular infiltration at the apex of the right lung; the vital capacity was 195 cubic inches, the average being about 235 cubic inches. J. M. with evidence of induration and softening at the apex of the right lung, had a vital capacity of 85 cubic inches. H. A. S. with evidence of a moderate amount of tubercular disease at the left base from old pleuritic trouble, had a vital capacity of 185 cubic inches. W. H. D. with a slight infiltration in the outer clavicular region of the left apex, but with the perfect appearance of health and attending to his usual occupation, had a vital capacity of 150 cubic inches. In all of these cases the diagnosis was verified by the finding of tubercle bacilli in larger or smaller quantities.

Brehmer[3] goes so far as to say that the physician can with the aid of the spirometer determine whether the individual who comes to him for the first time to be examined, or is seen by him for the first time, has pulmonary tuberculosis or not, and that the spirometer is, *par excellence*, the means, and indeed the only one, to determine with certainty under all conditions the first beginnings of pulmonary trouble. "By it," he says, "we can determine whether or not any, even a very small portion of the lung tissue is unaccessible to air, and whether there exists any induration, although it may be surrounded by air-permeated lung tissue." Says Renzi, in his recent work upon phthisis,[3] "spirometry shows a diminution of the lung capacity even in the beginning of the disease."

On the other hand, if the general symptoms were suggestive of tubercular trouble but if the vital capacity was up to or beyond the average, it was a favorable piece of evidence against actual lung invasion. For example, E. J. T., a young woman with a marked family history of tubercular trouble, and with general symptoms strongly suggestive of it, came to me with a communication from her family physician that two months previous he had found the right apex suspicious. She had a vital capacity of 150 cubic inches, the average for a women, and the examination of the lungs by auscultation and percussion was negative, and no bacilli were found in the sputum.

Wintrich — quoted by Brehmer — narrates two cases in which the spirometer test determined the fact that no lung trouble existed in spite of suspicious symptoms. One was a governess who had suffered from an annoying cough, accompanied sometimes with a little blood. Her general condition was good but her friends were much alarmed, fearing disease of the lungs. The spirometer test, however, gave the average lung capacity for her height, namely, 17 cubic centimetres to one centimetre of height — about 2½ cubic inches to one inch in height — and consequently the cough was considered hysterical. The other, also a young woman, had for a long time a severe, troublesome cough, and it was feared that she also might have some deep-seated lung disease; but the spirometic test gave 2,720 cubic centimetres of lung capacity — her height being 165 centimetres, or 17 cubic centimetres to one centimetre of height — indicating that the cough was not the result of any lung invasion. One might naturally ask why could not auscultation and percussion have as well determined this fact, and also the examination of the sputum; but Brehmer answers this by saying that examples are by no means rare where neither the subjective symptoms nor the most exact examination by means of auscultation and percussion will, with certainty, reveal infiltration, but where the spirometer shows an important diminution of the lung capacity, and only after a year and a half or two years will auscultation and percussion give evidence of infiltration at the apices; and that the patients have after some years died of lung disease. As to the examination of the sputum — in one of the cases above quoted by Brehmer, there was no sputum, and in the other the slightest amount, if any. And further, a spirometic test requires but the slightest amount of skill and experience, and there are no sources of error if the spirometer is, to begin with, accurate, while examination of the sputum, if there is any, requires experience and skill and expensive appliances.

Further, when the diagnosis of tubercular invasion has been established, the test of the vital capacity is a factor of more or less value in forming a prognosis. As Renzi says: "It has especially a high prognostic worth, for when the breathing capacity is very considerably diminished, the prognosis is unfavorable." There may possibly be a slight danger of hemorrhage in taking this test, but as one would generally apply it only in incipient cases, this, it seems to me, is inconsiderable. It is a test which is very readily made and the sources of error are small. Either a dry or a water spirometer may be used. I am accustomed to both, with a preference for the latter; it seems to me to be rather more accurate and less likely to become disarranged. As illustrative of this part of the subject, I give the lung capacity of thirteen consumptives with more or less advanced disease.

| | |
|---|---|
| A, male | 145 cubic inches. |
| B, male | 115 " |
| C, male | 76 " |
| D, male | 50 " |
| E, male | 75 " |
| F, male | 70 " |
| G, male | 75 " |
| H, male | 132 " |
| I, male | 103 " |
| J, male | 102 " |
| K, male | 95 " |
| L, male | 52 " |
| M, female | 85 " |

The average lung capacity for males being 235.7 cubic inches, and for women about 150 cubic inches.

The pneumatometer or pressure spirometer is the instrument used in measuring the so-called strength of the lungs — or the inspiratory and expiratory forces. Under normal conditions, according to Waldenburg, the expiratory force exceeds the inspiratory by 20 to 30 millimetres. In cases of tubercular disease, however, even in the earliest stages, "the inspiratory power is diminished, whilst the expiratory remains normal."[4] Renzi has repeated Waldenburg's experiments, and finds that both the inspiratory and expiratory forces are diminished in tuberculosis of the lungs, but the former more so than the latter and earlier. In emphysema the expiratory pressure is lowered. I have made a large number of observations upon the expiratory force, "strength of lungs" so-called, and I am unable to find that there is any constant ratio between it and the lung capacity. The test has a certain value, however, I think, as a gymnastic

[3] Die Chronische Lungenschwindsucht und Tuberculose der Lunge, Dr. Herman Brehmer, Berlin, 1869.

[3] Pathogenese, Symptomatologie, und Behandlung der Lungenschwindsucht, von Dr. E. De Renzi, Wien, 1894.

[4] Powell: Diseases of the Lungs.

exercise. Waldenburg used a mercurial manometer. I have used what is in common use in the gymnasiums, an ordinary steam-gauge made for recording low pressure. Dr. Denison, of Denver, Col., has also devised a mercurial instrument, which I have here.

In thoracometry two circumferences of the chest are taken, one at the level of the nipples, and the other about two inches below, the "respiratory chest" so-called. These may be taken under three conditions: extreme inspiration, extreme expiration, and in calm breathing. I have been accustomed to take them in calm breathing and extreme inspiration only. The important fact to be ascertained in these tests is the mobility of the chest-walls as a whole. To determine the amount of excursion of the chest-walls antero-posteriorly and laterally we measure these two diameters in repose and full inspiration: this is important, for I have often found that the expansion comes almost entirely from the increase of one diameter alone, as the accompanying charts illustrate. I take them at the level of the nipple, the antero-posterior one, by metal calipers — the self-registering ones I think, are more convenient — and the lateral one either with the same instrument or a pair of wooden slide calipers.

These measurements of the circumference and diameters of the chest taken in repose and inflation tell us of its size and mobility, but not of its shape or of the symmetry or asymmetry of the respiratory movements. It is a fact I have frequently verified that the apparent and real shape of the chest often differs very largely; and further we know that it frequently expands unsymmetrically, the amount of excursion of one side of the chest-walls being larger than that of the other, or the expansion being mostly either anteriorly or laterally. In order to make apparent these facts of shape and variations of expansion we can trace the contour of the chest in repose and inflation, which will still further complete our knowledge of the respiratory chest, its movements and contents. For this purpose we can either make use of a simple band of lead with a rubber hinge as I have done, or the more complicated and accurate apparatus of Démény, of Paris. Generally for the purpose of the clinician the simpler instrument will suffice. The contour of the chest is first taken in repose and charted, and superimposed upon this its shape when fully expanded, thus giving us a representation of the shape under the two conditions. By this method, for example, we can see at a glance if the two sides of the chest expand unequally, as in a case of previous pleuritic trouble.

By these additional methods of physical examination, which I have enumerated and briefly described above, I feel convinced that we can often obtain valuable knowledge of the respiratory chest and its contents in addition to that obtained by auscultation and percussion; and in doubtful cases, as I have said, of suspected tubercular trouble, their evidence will often, I believe, render the diagnosis clearer.

I do not by any means consider all these tests of equal value; indeed, taken by themselves some have very limited value, such as the strength test of the lungs and the tape measure of the chest expansion, but the sum total of them does, I believe, very materially supplement the knowledge obtained by auscultation and percussion, as well as suggest to us possible defects in the respiratory function when all other evidence is negative. Moreover, by an examination of this kind one gets into the habit of looking at his patient from rather a different point of view, a physiological one, if I may so denominate it, in addition to the pathological one. And further, if in an examination of a suspected case we obtain no evidence of disease, we do gain information by these additional methods which we could not obtain, or but indifferently, by auscultation and percussion, namely, how the function of respiration is being performed.

## MEASUREMENTS OF THE CHEST AND LUNG CAPACITY.

TABLE I. — *Chest Measurements.*

| CHEST MEASUREMENTS. | Repose, inches. | Inflated, inches. | Difference, inches. |
|---|---|---|---|
| *Girth, Muscular.* | | | |
| MEN. | | | |
| Average of Dr. E. O. Otis, 1,000 measurements, between sixteen and forty years of age | 34.0 | 36.1 | 2.1 |
| Average of Dr. Hitchcock, of Amherst College, 8,000 measurements | 34.6 | 36.5 | 1.9 |
| Average of E. Hitchcock, Jr., of Cornell College, 15,000 measurements | 34.5 | 36.3 | 1 8 |
| WOMEN. | | | |
| Mt. Holyoke and Wellesley students. Measurements Miss Wood and Dr. Mary Colton | 29.5 | 31.5 | 3.0 |
| *Chest, Respiratory.* | | | |
| MEN. | | | |
| Average of Dr. E. O. Otis, 1,000 measurements | 31.1 | 33.1 | 2.0 |
| WOMEN. | | | |
| Fifty per ct. of 1,500 Wellesley students, Miss Wood | 24.6 | 27.2 | 2.6 |
| *Depth of Chest.* | | | |
| MEN. | | | |
| Average of Dr. E. O. Otis, 1,250 measurements in repose and 362 inflated | 7.5 | 8.3 | 0.8 |
| WOMEN. | | | |
| Fifty per cent. of 1,500 students at Wellesley, Miss Wood | 6.9 | .... | .... |
| *Breadth of Chest.* | | | |
| MEN. | | | |
| Average of Dr. E. O. Otis, 400 measurements | 9.9 | 10.8 | 0.9 |

TABLE II. — *Capacity of Lungs.*

| | Cubic Inches. |
|---|---|
| MEN. | |
| Average of Dr. E. O. Otis, 1,000 measurements | 240.6 |
| Hitchcock, 8,000 measurements | 230.0 |
| Hitchcock, Jr., 15,000 measurements | 236.6 |
| WOMEN. | |
| Mt. Holyoke and Wellesley students, measurements of Miss Wood and Dr. Mary Colton | 145.8 |
| Fifty per cent. of 1,500 Wellesley students, Miss Wood | 150.3 |

TABLE III. — *Comparison of the "Vital" or Lung Capacity and the Amount of Air Expelled after an Ordinary Quiet Inspiration. Average of Dr. E. O. Otis. One Hundred and Fifty Measurements.*

| | Cubic Inches. |
|---|---|
| Vital capacity, or the amount of air exhaled after a full inspiration | 230.5 |
| Amount of air exhaled after an ordinary quiet respiration | 129.3 |
| Difference, or "complemental" or "reserve" air | 101.2 |
| Difference as given by Hermann | 97.6 |

If the vital capacity is low and the expansion poor, we are enabled, by the knowledge of these deficiencies, to warn our patient of possible tubercular trouble in the future encouraged by his faulty habits of respiration, and teach him how to correct them by gymnastic exercises arranged to obviate these deficiencies. As Renzi says, in speaking of spirometry, "One can in some degree form a reliable opinion as to a possible

future lung invasion, and, therefore," he adds, "it is important that this means of examination should be used in the schools and gymnasiums."

These methods of examination are of value also in keeping before one's mind this valuable means of treatment and prophylaxis, namely, lung-expanding exercises, a treatment all too much neglected, it seems to me, but which, when properly arranged and supervised, can produce striking results.

Says Dr. Butler in his conclusions to a recent paper read before the American Climatological Association, upon "The Methods and Value of Supervised Exercise in the Prophylaxis of Pulmonary Phthisis": "Among many therapeutic agencies for imminent or incipient phthisis, one of the most useful is respiratory exercise. . . . Of all methods of obtaining increase of respiratory strength, capacity and nutrition, supervised exercise secures the most permanent and lasting results."

I give, on the preceding page, a table, previously published, of measurements and averages of the chest and its vital capacity. I also present a variety of chest contours with the vital capacity and expansion.

## Medical Progress.

### REPORT OF PROGRESS IN PUBLIC HYGIENE.

BY S. W. ABBOTT, M.D.

#### INDUSTRIAL HYGIENE.

THE Consulting Committee of Public Health of France, in its last annual report,[1] publishes the text of a proposed code of regulations for the protection of industrial labor. The proposed code is divided into two parts, the first pertaining to the health of operatives, and the second to their security from accident and harm. These are to be carried out with penalties under the provisions of an act of June 12, 1893.

The following is a digest of the hygienic regulations: (1) The places used for work, and all their appurtenances are to be kept constantly clean. The floors to be thoroughly cleansed at least once a day before the beginning, or after the closing of work, but never during work. The cleansing to be done by washing unless the character of the work forbids it. The walls and ceilings also to be frequently cleansed and kept in good order.

(2) In establishments where organic materials are used, the floor should be impervious and level. The walls to be either plastered or glazed, or covered with a good coat of zinc paint. Floors and walls to be washed as often as is necessary with a disinfecting solution. In every case a washing with strong alkali should be conducted at least twice a year. Decomposing material must not be allowed to remain in places where work is done, nor should much material be used in the processes of work. It should be taken away, or in case of deposit, should be carefully disinfected.

(4) The air of workshops must be kept constantly free from all emanations from sewers, drains, vaults or other sources of infection. Establishments connecting with a public or private sewer must be provided with an efficient trap on the main drain, to be frequently cleansed and flushed with water at least once a day. Operations in sewers, along gas mains, smoke flues, vaults and similar places likely to contain harmful gases, must only be undertaken after the air has been purified by efficient ventilation. Workmen in such places must be provided with safety-belts.

(4) Water-closets must not be in direct communication with closed places where workmen are employed. They must be provided with an abundant supply of water for flushing. The floor and walls must be of impervious material, zinc paint only to be used and of a light color. There should be at least one closet for each thirty persons, and urinals in sufficient number. No drain, cesspool, or any other mode of sewage-disposal is to be permitted without the proper sanction of the authorities.

(5) Closed places used for work must not be tightly closed. The air-space for each workman must never be less than eight cubic metres (about 280 cubic feet). These places should be well ventilated; and in cases where the character of the work does not allow ventilation, and where the materials used are harmful, artificial ventilation must be furnished, of such sufficiency that each man shall have a minimum of 24 cubic metres of fresh air per hour (about 840 cubic feet). Workrooms, as well as adjoining halls and stairways must be well lighted.

(6) Dust, noxious gases and harmful powders must be forced out-of-doors as soon as they are produced, and must not be allowed to mix with the air of workrooms. In the case of vapors, gases and light dust, connection must be made with chimney-shafts, or some other effectual method must be employed. For the dust powdered by mills, crushers, grindstones and other similar mechanical appliances, blowers must be furnished, connecting with a strong ascending current of ventilation. In the case of heavy gases, such as mercurial vapors, bi-sulphide of carbon, etc., ventilation must be effected by downward currents, each working-table being put in direct connection with the ventilator. Noxious gases and dust must not be let loose into the out-door air; gases and vapors must be condensed or burned, and dust must be carried to furnace fires or into collecting chambers. The powdering of irritating and poisonous substances, and similar operations, such as the sifting and packing of these materials, must always be done by machinery, and in closed apparatus when possible.

(7) During the interruption of work for meals the workrooms should be cleared of their occupants, and the air of these rooms entirely renewed.

(9) Workmen must not take their meals in the workrooms, nor in any of the places used for work. Proprietors of establishments must put at the disposal of their employees the means for ensuring personal cleanliness, and furnish dressing-rooms with wash-bowls, as well as water of a good quality for drinking.

The second division of the code relates to the means of insuring workmen against accidents from falls, revolving machinery, belts, elevators, electric dynamos and wires, sharp tools, the oiling of machines when in motion, etc.

#### QUANTITATIVE DETERMINATION OF THE DUST IN THE AIR.

Dr. Carl Arens, of Wurzburg,[2] has devised a method of estimating the amount of dust in the air of factories,

[1] Recueil des Travaux du Comité Consultatif d'Hygiène publique de France, 1894, June 23, p. 148.

[2] Archiv. für Hygiène.

etc. The apparatus consists of a bellows-like arrangement, capable of holding five litres of air. In place of a nozzle, it has a Y-shaped tube provided with taps, so that the air drawn in by one of the arms may be expelled by the other. To make it air-tight the edges were smeared with soap and water, and the apparatus tested, to see if bubbles escaped.

The end of the Y-tube through which the air is to be expelled, is fixed to a glass tube 8.1 cubic metres long, stuffed with cotton-wool. Two hundred litres can easily be made to pass through the cotton-wool in a half-hour or more, and the difference in the weight of the tube (after drying), before and after the experiment, represents the amount of dust in the air drawn through. He obtained the following results, the figures representing the number of milligrammes of dust per cubic metre of air:

| | |
|---|---|
| Dwelling-room | .1 |
| School-room | 8.0 |
| Horse-hair manufactory | 10.0 |
| Sawmill | 17.0 |
| Woollen factory | 20.0 |
| Snuff-factory (during working-hours) | 72.0 |
| Cement factory | 224.0 |

The author has also devised a contrivance to catch the dust in a horse-hair factory, consisting of a box in the air-shaft, containing overlapping ledges stretching diagonally from side to side, covered with flannel. These ledges are kept wet with a small stream of water. The dust sticks to the moistened flannel, and the air freed from dust passes through.

### THE DUST OF DIFFERENT TRADES AND ITS EFFECTS ON THE WORKMEN.

Dr. Wegman[3] contributes a paper on the dust of different trades, with reference to its shapes and mechanical action on workmen. The paper is fully illustrated with plates showing the microscopic appearance of different sorts of dust. The effect of dust upon the eyes, skin and lungs are portrayed. The author believes that consumption caused by inhaling dust differs materially from tubercular consumption, although it undoubtedly predisposes to a condition of the lungs which makes them eventually succumb to the tubercle bacilli. Removal from an atmosphere of dust will allow the lungs to recover in a great measure, and lungs which have become black with inhalation of soot will, if the exciting agent be removed, gradually recover their normal condition, even after a year of inhalation. The dangers of dust-inhalation are diminished if we lessen the amount of dust in the air, or if, for varying periods, the dust in the room is diminished in quantity. He mentions the following prophylactic measures:

(1) Dust can be prevented in many industries by moistening or wetting the materials to be worked, as for instance, in the substitution of wet grinding for dry in the case of metal, glass and stone.

(2) The introduction of machinery instead of hand labor.

(3) Unavoidable dust to be dealt with, and led away at its source by special fans.

(4) Protective personal measures on the part of the workmen, as, for instance, by wearing spectacles, sponges, respirators, etc.

(5) Shortening the hours of labor, or introducing pauses in the work.

(6) Passing laws dealing with the subject of dust.

[3] Archiv. für Hygiène.

### EXPERIMENTS UPON SEWAGE FILTRATION.

Sidney R. Lowcock, C. E., contributes a paper to the Proceedings of the British Institution of Civil Engineers,[4] in which he gives the results of experiments upon sewage filtration with a filter tank, seven feet six inches square and four feet deep, filled with different filtering materials at different successive experiments. The object of the experiments was to determine the possibility of constructing and working a filter which should follow the operations of nature, and promote the growth of the nitrifying organisms and the consequent purification of a sewage effluent, when working continuously.

After giving a *résumé* of the earlier experiments in this direction, and commenting upon the importance and value of the more extended experiments of the Massachusetts Board of Health at Lawrence, he considers that the following conclusions have been established:

(1) That filtration is not only a mechanical but also a chemical and biological process, when it is properly carried out and when sufficient aeration is provided for.

(2) That no practicable chemical process yet devised will, alone, do more than remove the suspended matters in sewage, and a very small portion of the dissolved impurities.

(3) That dissolved impurities can only be removed by the action of micro-organisms, that is, by nitrification; and this can only be effected subsequently to the decomposition of the organic matter and the formation of ammonia, and in the absence of undecomposed organic matter.

(4) That organic matter cannot be destroyed or converted into plant food until it has been dissolved.

(5) That, as nitrification proceeds far more rapidly in a moistened and aerated porous soil than in a liquid, and as the nitrifying powers of soil are capable of cultivation, the process should be carried on by means of filtration, so that the organisms can be cultivated and be supplied with food in the filter.

(6) That the most important factor in the processes of decomposition and nitrification, and the subsequent preservation of the nitrates formed, is an ample supply of air.

(7) That the suspended matters in sewage should not be allowed to pass on to the land or filter-bed, as they clog the surface and have to remain until they are decomposed before they can be destroyed.

*(To be continued.)*

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

Regular Meeting Monday, January 24, 1895, Dr. C. J. Blake in the chair.

Dr. Goldthwait showed

A SECTION OF A SPINE

from a patient of forty-five, who had had a malignant tumor of the breast removed four or five years previously.

[4] Vol. cxv, p. 297.

Dr. Warren: I have here

A FIBROID TUMOR OF THE UTERUS,

which I temoved on Friday. The specimen is interesting partly from its size, and partly from the peculiar attachment of the growth. The specimen and the uterus are also enlarged, and a smaller additional fibroid tumor attached to it weighed about sixteen pounds.

The first thing of interest in opening the abdominal cavity was the appearance of a congeries of large varicose veins and lymphatics. They were tortuous and greatly enlarged, many of them having the calibre of the little finger. It was apparent that they belonged to the omentum owing to the thinness of the membrane in which they ramified. With some difficulty several of them were tied, and the hand passed through in order to examine the tumor which occupied the greater part of the abdominal cavity; and after trying to tie them separately, I came to the conclusion that the best way was to deliver the tumor, adhesions and all, the omentum being everywhere adherent to it. It was lifted out of the abdominal cavity more easily than I expected, and was found attached to the fundus of the uterus by a narrow pedicle, the tumor obtaining the greater part of its nourishment from the omentum, the vessels of which had been enlarged evidently for the purpose of nourishing the tumor. The omentum and the pedicle of the tumor were tied, and the tumor quickly removed. The uterus was afterwards removed, and the stump was sewed in beneath the peritoneum, and everything left in a satisfactory condition; but in the middle of the night the patient suddenly failed and in spite of infusion did not rally. At the autopsy it was found that hemorrhage took place from some of the large vessels in the omentum. It seems to be an illustration of one of those cases of separation of a fibroid from the uterus, so that in a comparatively short time it might have floated off in the abdominal cavity.

Dr. Whitney: As Dr. Warren has said, the especial interest is in the condition of the lymphatics which are so enormously distended in this veil of omentum which passes over and is adherent to the tumor. It is perhaps easy to understand why a vein should enlarge, but I do not see why the lymphatics should to such an extent. We know that fibroids have enormous lymph spaces in them at times, and some of them have cavities as big as a walnut which contain this clear serous fluid evidently of lymphatic character. This tumor is very solid and has very small lymph spaces. I do not remember to have noticed in other uterine fibroids enlargement of the lymphatics of the broad ligament.

Dr. F. G. Morrill reported

THE SUCCESSFUL USE OF ANTITOXIN IN CHECKING AN ENDEMIC OF DIPHTHERIA AT THE CHILDREN'S HOSPITAL.

Dr. E. G. Cutler read a paper on

HEMORRHAGIC PANCREATITIS.[1]

Dr. J. W. Elliot followed with an article on the

SURGICAL TREATMENT OF PANCREATITIS.[2]

Dr. W. F. Whitney then considered the

PATHOLOGICAL ASPECTS OF PANCREATITIS.

[1] See page 354 of the Journal.
[2] See page 361 of the Journal.

Dr. Warren: Cases of pancreatitis seem to be sufficiently numerous to make this disease one of practical interest to the surgeon. At first I think it was generally supposed that it was very rare indeed and certain symptoms only were associated with it. Perhaps that accounted for the fact that many cases went unrecognized. The acute hemorrhagic type I presume was the type first recognized, and was associated with severe pain and sudden death. I have had three cases of pancreatitis. I think all of them have been alluded to, and two of them reported before.

One was a case connected with injury, and I think it has been reported by Dr. Fitz,— traumatic pancreatitis. The condition was discovered only at autopsy; and numerous injuries had been inflicted on the individual.

One of the cases I saw was certainly interesting from the surgeon's point of view of operative interference. It was the only one that seemed to hold out any chance of improvement by operation. This case has been reported by Dr. Whitney and Dr. Bush already. It may be of interest perhaps to the members to have me say something about the case in a general way. I saw the case after it had been previously seen by another consultant, and the trouble had existed already for perhaps ten days. The feature of that case was intense pain in the epigastric region; no large amount of fever; no symptoms of general peritonitis, but a severe pain. There was also vomiting of greenish vomitus. The question of an exploratory operation was raised, but as the patient stoutly refused to have it considered, it was not pursued with any vigor on our part. No diagnosis was made. There was a sense of resistance in the left hypochondrium extending to that region from the median line and some dulness and evidence of a tumor in that region. The patient improved a good deal in the next few days, and I saw nothing of the case for over a week. I was then called again, the patient being in a state of collapse and approaching a moribund condition, and it seemed that operative interference would be useless at that time. The autopsy was performed by Dr. Whitney, and the specimen is here this evening. The interesting features brought out at autopsy were that there was no peritonitis, but a large pus-cavity existed containing about two quarts of pus, in the middle of which the pancreas floated in a gangrenous condition. Here was a case in which, if the peritoneum had been stitched to the abdominal wall and an opening made, this cavity could have been readily drained. Whether the patient would have lived without any pancreas, having gone through such a severe ordeal as that I am not able to say, but in the light of the two cases of which Dr. Elliot speaks it seems possible.

The last case occurred a few weeks ago at the hospital. It was seen by quite a number of surgeons and physicians. The opinions of these gentlemen were that there was disease of the liver. The symptoms in this case were in the right hypochondrium. There was dulness and tenderness; also vomiting. The patient was seventy-four, of temperate habits, and had been well up to the time of this illness, with the exception of about a month before, when he was doing some work in the cellar he had felt faint and had to sit down. He was helped up stairs. The condition passed away and was forgotten, but was recalled by his wife in his last illness. He went to town as usual. He was taken suddenly with pain and nausea and

took a drink which he threw up and went home. We saw him at the hospital about a week after the beginning of the sickness. Most of the surgeons thought it disease of the liver. I thought it was likely to be a cancer of the hepatic flexure. That was Dr. Homans's diagnosis, and I inclined to that. The peculiarities of this case were its somewhat chronic course, and the absence of any very severe pain in the epigastric region, but as I have heard the cases reported to-night the presence of severe pain does not seem to be a *sine qua non* for the diagnosis of pancreatitis. At the autopsy Dr. Whitney found the hemorrhagic condition which has been described this evening, and then a burrowing of it along the root of the mesentery, and what finally seemed to carry the patient off was perforation through the mesentery into the lower portion of the abdominal cavity. I will read what is said by Dr. Whitney about the peritoneum.

I think discussions of this kind are of value as they will call the attention of the profession to this disease, and it is possible that here and there a case may be found capable of being saved. I ought to add that in this last case the question of pancreatitis was considered. In regard to the second case and also the last two cases which I alluded to, the specimens are here, and Dr. Whitney, I think, might perhaps show the one of abscess of the pancreas which is distinctly different from the others, and might be interesting to look at.

DR. CUTLER: Pancreatic hemorrhage is a thing that occurs so suddenly, sometimes so violently, that the patient usually dies at once, and the physician who is called to see it is able to make the diagnosis by exclusion. The hemorrhagic pancreatitis lasts longer and has a set of symptoms in common with quite a number of other conditions, and these conditions may be such that a man may not be able to differentiate and make anything more than a probable diagnosis. The kind of case which Dr. Elliot and Dr. Warren spoke about, is accompanied by the presence of tumors and definite conditions which aid very materially in the diagnosis. Such cases last longer than the ones I have spoken of. It seems to me the most difficult to diagnosticate is the hemorrhagic form of pancreatitis because there are so many other things which may exist which have symptoms in common with the condition.

DR. M. H. RICHARDSON: I have no doubt that there are more cases of acute disease of the pancreas than we suspect, because of the large number of deaths following acute abdominal symptoms in which no diagnosis can be verified by exploration, either before or after death. We can all recall cases of this kind in which a rapidly fatal end has followed the onset of acute abdominal pain.

My experience with the diseases of the pancreas has been limited to cysts, either congenital or acquired. The pancreatic cyst, even if purulent, seems to be too far removed from acute pancreatitis, both as to etiology, as to treatment, and as to prognosis, to be properly discussed this evening.

The question of probable inflammation of the pancreas always arises in the course of acute abdominal symptoms in which most other and common conditions can be excluded. I can recall several cases in which the question has been fully discussed, but in which, unfortunately, the exact condition must always remain obscure. Epigastric tumors containing pus, even if they have appeared some weeks after the initial pain, always suggest the possibility of a pancreatic source. I recall one case in particular in which such a tumor slowly appeared after the onset of acute pain at the pit of the stomach. The patient, a young girl, had been in the habit of swallowing daily the rubber gum she had been chewing. She was finally seized with acute pain, with fever, in the epigastrium, where I found some weeks later a boggy tumor. I supposed that the gum had formed a ball in the stomach, and that nature was taking this way for its expulsion. Deep exploration of the tumor down far enough to feel the abdominal aorta, failed to reveal anything but an infiltrated, boggy mass containing small cavities of pus. No foreign body was detected. The pancreas was never thought of as the possible source of the tumor, yet I dare say the trouble may have originated there.[2]

The diagnosis of acute pancreatitis in the stage of operable abscess seems to me necessarily obscure. An acute inflammation, to be positively made out, must be explored in its early stages, before the involvement of the secondary parts conceals effectually the exact origin. A localized abscess that is reached by separating the omentum, and that is found situated in the exact region of the pancreas, may fairly be said to be of pancreatic origin, in the absence of a stomach or of an intestinal perforation. In the case of a perforation of the posterior wall of the stomach, one would expect to find a very extensive collection of foul-smelling pus filling the lesser cavity of the omentum.

Perforations of the intestine in the immediate region of the pancreas, the posterior wall of the transverse colon, perforation of the third portion of the duodenum, or of the beginning of the jejunum — these might simulate septic collections from the pancreas so closely that no positive differentiation could be made out.

The subject is of extreme interest to the surgeon as well as to the physician and to the pathologist. It needs careful attention on the part of those who see these cases in the beginning, for early interference may be rewarded by as brilliant results as are now obtained in the early hours of appendicitis.

We have only to recall the early discussions in appendicitis, in which no one could report a successful case of removal of the gangrenous appendix, to express the hope that one day we may report as favorable progress in acute pancreatitis.

DR. CUTLER: I should like to ask Dr. Mallory if as pathologist at the City Hospital he has seen cases of this kind of late. During seven years in which I was pathologist I think a single case only occurred.

DR. MALLORY: Personally I have never seen a case at the City Hospital. I believe they have had one case in the last year. I have seen one case in private which was diagnosticated as hemorrhagic pancreatitis, but which proved to be an ulcer of the

[2] March 12, 1895. Another case more suggestive of the pancreas has come to my notice since Dr. Elliot's paper was read. Mrs. B., aged fifty, a patient of Dr. C. S. Cahill, of Cambridgeport, was taken six weeks before February 19th, with what she called a bilious colic and a sharp diarrhea. For two days she had nausea and vomiting. Dr. Cahill first saw her February 17th. She then had a temperature of 102°, and a pulse of 120, with respirations at 34. There had been no jaundice. She was a very stout woman. I found a large, hard, smooth, tender tumor in the epigastrium, rather to the right than to the left of the median line. Aspiration showed very foul, fecal-smelling pus. I took her to the Massachusetts General Hospital, and two days later explored the tumor. It contained superficially several ounces of fetid pus. By carefully exploring with the finger, I came upon a very considerable cavity in the depths of the epigastrium, directly towards the pancreas. She has made a good recovery. In this case the possibility of a pancreatic source was first suggested by Dr. Elliot after the operation. The more I think of the case the more likely the explanation seems. The foul odor to the contents of the abscess suggests also some intestinal contamination.

duodenum extending round the pancreas. Fat necrosis was present.

Dr. Whitney: The necrotic and gangrenous forms of pancreatitis seem to be sequelæ of the hemorrhagic. In all such cases I have always found indications of more or less hemorrhage about or in the region of the pancreas, in the form of black clumps of pigment or black shreds of necrotic tissue. The subject is a very interesting one, and aside from those of anemic necrosis of the cells of the pancreas I have not seen evidences of an inflammation of the parenchyma of the organ. The changes have always been in the interstitial tissue. The hemorrhage is always primarily, as far as I have seen, between the lobules of the pancreas and has extended from there into the cells of the pancreas, and when not necrotic these have always stained well. It is possible that disturbances of circulation play a more important rôle than has been assigned to them, in producing at first small areas of hemorrhagic infarction in the interlobular fat tissue, on which the pancreatic juice acting in some way forms a toxine, which acts as an irritant and causes necrosis of the fat tissue. It has been argued that this fat necrosis cannot be dependent on pancreatic juice because it is found scattered all throughout the peritoneal surfaces and not in lines extending out from the pancreas. I do not see why if there is a chemical irritant formed it may not be selective in its action, just as toxines of certain bacteria produce necrosis only in certain spots although present everywhere in the blood.

## NEW YORK ACADEMY OF MEDICINE.

### A SYMPOSIUM ON ANTITOXIN.

At a crowded meeting of the New York Academy of Medicine, held April 4th, Dr. Joseph E. Winters, Professor of Diseases of Children in the University Medical School, made an elaborate and violent attack upon the use of antitoxin in the treatment of diphtheria, as well as upon the bacteriological department of the Board of Health. The occasion which afforded him the opportunity to give vent to his bitter invectives was a sort of symposium on antitoxin which had been arranged by the authorities of the Academy.

The discussion was opened with a paper by Dr. Hermann M. Biggs, entitled, "Experiences in the Production and Use of Diphtheria Antitoxin," in which he described the good effects of the remedy in its use at the Willard Parker Hospital under the control of the Board of Health. He had personally observed the effects of antitoxin in 252 such cases. In 30 cases in which it was applied on the first day after the appearance there were but two deaths; in 77 cases in which it was first used on the second day after the appearance of the disease there were seven deaths; in 67 cases in which it was used on the third day there were 11 deaths; in 31 cases in which it was used on the fourth day there were seven deaths; and in 46 cases in which it was used on the fifth day there were 13 deaths. His experience went to strongly confirm the opinion generally held that the more promptly the agent was resorted to the more efficacious it would prove. The antitoxin treatment of diphtheria, he said, was now conceded to be the greatest discovery of the century in therapeutics.

Dr. William H. Park read a paper describing the method of producing antitoxin through the inoculation of horses with diphtheritic virus.

Dr. C. H. Peck, of the county branch of the New York Infant Asylum, at Mount Vernon, described the good results obtained from antitoxin in a recent serious outbreak of diphtheria in that institution.

Drs. George P. Biggs and Ira von Gieson, of the Board of Health service, followed with short papers describing the method employed and the good effects obtained, together with the results of autopsies on the bodies of children who had died at the Willard Parker Hospital after being treated with antitoxin.

There then followed a general discussion, which was participated in by Drs. Winters, George L. Peabody, L. Emmett Holt, W. P. Northrup, W. L. Somerset, and others, most of whom agreed with the previous speakers as to the efficacy of the antitoxin treatment.

Dr. Winters said, in part: "Some months ago I hoped and expected, in company with the rest of my associates here, that a specific for the toxine of diphtheria had at last been discovered. My experience of the past three months, a personal experience dealing with 150 cases at the Willard Parker Hospital, has been a sad — an extremely sad — disappointment. I am here as the result of that experience — and I regret extremely to say it — to oppose the antitoxin treatment of diphtheria. I have watched for three months, and I say that not a single case of septic diphtheria has shown one sign of improvement under antitoxin treatment. I have asked Dr. White at the hospital — and he is here and will bear me out — not to use any treatment in this case and that case, saying the patients would recover without it. And they did recover. Statistics seem to be the principal part of the papers here to-night, but I wonder if you have noticed that a larger part of the statistics consist of elimination. 'We exclude this and we except that,' they say. Dr. Biggs did not tell you that in December we had eight consecutive recoveries in diphtheria without antitoxin. I can show you by the records that Dr. Biggs has, that in a group of eight cases two were given the first injection on the eighth day, and they recovered. Two more were given the first injection on the fourth day, two on the fifth day, and two on the sixth day; and they all died. I can show you further by the record that the stronger the dose, the worse the result; the weaker the dose, the better the result.

"I have daily examined every case sent to the Willard Parker Hospital for three months. I have seen many cases on the list which Dr. Biggs quoted in which there was not the slightest clinical evidence of diphtheria. . . . There are more than a score of cases of that sort. There may have been the bacteria of diphtheria, but not the clinical evidence of the disease. Almost every case examined bacteriologically comes back from the Board of Health as diphtheria. This is the general statement made to me by physicians in every part of the city. The statements made here to-night are absolutely worthless — they show nothing. . . . There is a difference between individuals in their susceptibility to the same quantity of the same drug. But we have assumed that we are treating animals — that the serum will act on all alike. This difference in susceptibility explains the unfortunate death of Miss Valentine, of Brooklyn. It explains the deaths in all the fatal cases I have alluded to. When a bacteriological diagnosis, in the absence of

any clinical diagnosis, can force the poor and unfortunate into a contagious disease hospital, then I say that such a diagnosis becomes a crime. Antitoxin is dangerous in its immediate effects on the kidneys and the nervous centres, dangerous in its effect on the blood, dangerous to life."

Dr. Winters then proceeded to describe in detail the unfavorable effects of antitoxin as they have come under his observation — the great rises in temperature, the unnatural position of the head, the severe pains in the joints, etc. — and mentioned several deaths which he believed were due to the remedy and not to the disease for which it was employed.

In reply, Dr. Biggs characterized many of the statements and inferences made by Dr. Winters as distinctly untrue, and stated that no cases of diphtheria were sent to the hospital which were not reported to the Board of Health by practising physicians as diphtheria. He said, in part: "He (Dr. Winters) has omitted to explain why the mortality from diphtheria is still 10 per cent. lower in this city than it was last year. How and why are diphtheria epidemics milder all over the world this year than ever before? Why has the mortality been reduced in every city in the civilized world?"

At this meeting of the Academy of Medicine a fine oil-painting of the late Dr. Valentine Mott was presented to the Academy by his daughter, Mrs. Isaac Bell, the presentation speech being made by Dr. A. H. Ely. A resolution, proposed by Dr. Wm. M. Polk, was adopted providing that the first meeting of the Academy in May should be devoted to memorial exercises in honor of Dr. Mott. On this occasion addresses will be made by Dr. L. A. Stimson, Chancellor McCracken, of the University of the City of New York, and Ex-Mayor Abraham Hewitt.

Resolutions, presented by Dr. Smith, were also passed, asking the Legislature to divide the present Department of Charities and Correction into two separate departments.

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At the last meeting of the Section on General Medicine of the New York Academy of Medicine, the paper of the evening was by Dr. Louis F. Bishop, entitled

A REVIEW OF THE PRESENT STATE OF OUR KNOWLEDGE OF GOUT, AND A DISCUSSION OF ITS COMPARATIVE FREQUENCY IN AMERICA.

In it he expressed the opinion that the disease was infrequently met with here in comparison with its prevalence in England. One reason for this he believed was because the country was so much younger, and another was the comparatively small amount of sour wine consumed here. "Unfortunately," he said, "the drinking of sour wine is becoming more frequent with the growth of American vineyards and the manufacture of native wine."

In the interesting discussion which followed the paper Dr. William H. Draper spoke on the theory of the nervous origin of the disease which had been referred to by Dr. Bishop. Although it was as yet very incomplete, he considered it of very great importance, and thought this must be admitted by every one who has seen much of the gout. It seemed to him that there was a very striking analogy to a purely nervous disease in the mode of attack, especially its suddenness. He thought that the importance of the uric-acid theory was possibly exaggerated, and that there was a tendency on the part of many to draw too sweeping conclusions from chemico-pathological examinations. Personally, he had met with many persons who had an inordinate amount of uric-acid in their blood, and yet who did not suffer from gout; and other persons whose systems contained very little of it, who did suffer from the disease.

The gouty habit, he remarked, was a constitutional vice. This he believed was clear, because it was hereditary — just as hereditary as form and feature. Another characteristic of the habit was that it was apt to be associated with one other important disease in the same individual, not often in members of the same family. This disease was diabetes, which he considered to be unquestionably a gouty affection.

As to the treatment of gout, he said he was not in accord with the popular notion as to the efficacy of abstinence from meat diet. He had met with numerous cases in which a meat diet proved to be the best. At some future time he supposed it would be discovered why persons who ought not to eat animal food, but do eat it, cannot take the carbo-hydrates, which they ought to eat. As to the use of alcoholic beverages, it was his experience that gouty patients find that if they drink spirits they meet with no inconvenience, but if they take malted liquors or wine, they suffer. As to the efficacy of various mineral waters which had been vaunted in the treatment of this disease, it seemed probable to him that perhaps, after all, the most effective thing about such waters was the water part. In other words, pure water taken in the quantities that persons who go to the so-called medicinal springs usually drink of mineral water would do just as much good as the latter.

Dr. F. P. Kinnicutt expressed the opinion that gout was considerably more prevalent in America than was generally supposed. As regards the diet for gouty patients, he had found that in some cases animal food and carbo-hydrates did not go well together, but that either kind did well by itself.

## Recent Literature.

*Text-Book of Hygiene.* A Comprehensive Treatise on the Principles and Practice of Preventive Medicine from an American Standpoint. By George H. Rohé, M.D. Third Edition. Philadelphia: F. A. Davis Company. London: F. J. Rebman. 1894.

Dr. Rohé's work comes to us revised and considerably enlarged, and in every way improved. Public and private hygiene receive due attention, the progressive character of preventive medicine is fully recognized, and the book has been made to conform to recent advances in sanitary science.

The book is prepared with a series of questions following each chapter, to adapt the work to class-room use.

The chapters on quarantine and marine hygiene have been revised by Surgeon-General Wyman and Dr. Geddings of the Maine Hospital Service and by Medical Director Gihon of the U. S. Navy. The added chapters upon examinations of air, water and food have been contributed by Prof. Seneca Egbert, as well as that which relates to vital statistics.

THE BOSTON

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## PSYCHOLOGICAL INTERPRETATION OF HYSTERICAL ANESTHESIA.

PIERRE JANET, known for his investigations on automatic states and works on the psychology of the hysterical,[1] has attempted an explanation of hysterical anesthesia accepted by Dutil in his monograph on hysteria[2] as the best yet given. He refers the anesthesia, as well as other of the paralytic stigmata of hysteria, to an enfeeblement of the higher functions of the cortex; in fact, there is now a general consensus in attributing this disease to anemia and malnutrition of the cortical centres. The idea of a narrowing of the field of consciousness, corresponding to the contraction of the field of vision, as the basis of the anesthesia, is peculiar to M. Janet's "interpretation." In brief, his explanation is substantially as follows:

Hysterical anesthesia is a species of *distraction*. In the normal individual under the influence of voluntary abstraction phenomena are witnessed not entirely differing from those which characterize the anesthesia of the hysterical. A person is engaged in his ordinary occupation and does not hear the din of the crowded city or perceive objects or contacts; he is, we say, busy with other things. When the attention is strongly applied to a subject of interest, even violent sensations may fail to elicit any response. Pascal forgot his physical sufferings while endeavoring to solve a problem. Now, hysterical persons have such distractions intensified. It is easy to produce in them by diverting their attention momentary insensibilities which have all the characters of their permanent anesthesias.

At the same time, the permanent *stigma*, the hysterical anesthesia, cannot be altogether likened to a distraction pure and simple. It is more enduring and is more clearly defined. It exists even when the attention of the person is not engrossed by a fixed idea or some external object. It does not disappear when he desires it, as in the case of the transient insensibilities which accompany distraction in the normal individual. The latter, it is true, does not hear the noises of a large city, the ticking of a clock near him, etc., and yet he can hear them if he tries to. There is, then, in hysterical anesthesia, which is a pathological phenomenon, something more than there is in distraction, a normal phenomenon.

In order to understand the differences which distinguish these two states, as well as their resemblances, it is necessary to have well in mind the psychic mechanism of the *perception of sensations*. We may represent this as an operation occurring in two stages. In the first stage various sensory impressions come to the cortex, constituting the elementary psychic phenomena, the consequence of multiple peripheral excitations (tactile, visual, auditory, etc.). These are the elementary sensations — primary states of consciousness. So far the notion of the personality of the subject does not come in. In the second stage a reunion, a synthesis, is effected of these elementary phenomena with the vast notion of personality, that is, with that aggregate of memories, of past sensations, of facts previously acquired, which constitute the idea of personality, the consciousness of the ego. It is this assimilation of new sensations by the conscious personality which enables the subject to recognize, that is, *perceive* them as like or unlike. Janet calls this *personal perception*.

Now the man best endowed is incapable of thus regrouping together, at each instant, in one same personal perception, all the elementary sensations awakened in him by the innumerable excitations which constantly assail his various senses. A great many of these elementary sensations are not included in his personality. They have not passed the threshold, and remain thus, *unperceived* but *real*, in the state of *sub-conscious* sensations. The maximum quantity of sensations which the subject can at a given moment assimilate, re-group in his personal perception, will give the measure of the *extent of his field of consciousness*.

Suppose the case of a normal individual listening to a lecture. He will perceive a certain number of sensations, auditory, visual — the words, the voice of the lecturer, his attitude, his gestures; but all the rest, the tactile, thermic, muscular impressions which he may receive at the same instant, will pass unperceived, and remain in the state of sub-conscious sensations. If instead of listening to a lecture, he undertakes immediately after the solution of a problem in algebra, his field of consciousness will be occupied by another series of sensations and images, all other sensations remaining in their turn in the state of sub-conscious phenomena. But by reason of the alternation of perceptions, as fast as he applies his attention to different objects furnishing different sensations, he will be able at last to perceive all the impressions. By this we can understand what is distraction, simple and normal.

Suppose now the case of a patient whose mental activity is enfeebled, whose field of consciousness is in a certain sense contracted to the point that he can no longer perceive at once more than a very small num-

[1] Pierre Janet: L'état mental des hystériques, etc. 2 vols. Paris, 1894.
[2] Traité de Médecine, t. vi.

ber of sensations; this person will neglect little by little to attend to the sensations which are least important for his habitual duties — the tactile sensations, for instance — applying himself to those, more indispensable, of hearing and of sight. During a certain period he will still be capable of heeding those neglected sensations and of rearranging them momentarily in the field of his personal perception when his attention is directed to them; but at length the "bad psychologic habit" is formed, and the time comes when he no longer can perceive them consciously; we prick his arm and to his surprise he does not feel the prick. After having been "distracted" (*un distrait*) with regard to these sensations, he has finally become anesthetic. The anesthesia of hysterical persons is then a symptom of weakness, of mental torpor; it is the consequence of the narrowing of the field of consciousness. These patients being able to grasp and include within their personality only a very small number of sensations, insensibly accustom themselves to direct their personal perception always toward the same group of sensations, and they come at last to the point where they can no longer apply it to the group of sensations which they have formed the habit of neglecting.

These theoretical considerations enable us to understand why at the onset of their malady, young hysterical patients have no anesthesia. They have only transient insensibilities, mobile at will, which the least distraction brings into being and which a little attention suffices to dissipate; at a more advanced stage, these insensibilities tend to become fixed and permanent. A more forcible appeal to the attention is then necessary to bring back momentarily the personal perception of sensations becoming more and more faint. Those sensations which are not perceived by the personality are nevertheless real; they are not entirely lost. They persist and continue to act in the latent state beneath the horizon of consciousness. In this sub-conscious state they may still have motor effects and influence other ideas. Most hysterical patients under hypnotism recover these impressions which were not consciously experienced during the waking state.

If we apply to hysterical anesthesia these essential notions, we may say that this morbid condition consists in an enfeeblement of the personal perception, which is limited to a certain order of sensations, to the exclusion of others. The other sensations unperceived and remaining in the sub-conscious state are nevertheless real, persist, act, and take part in the automatic functionating of the person's mind. We can understand why these anesthesias are sometimes systematic, elective and mobile; why they disappear temporarily by suggestion, or when by any means the attention of the subject is forcibly directed to certain of these sensations apparently lost; also why these anesthesias are aggravated when the patient is distracted by a reverie, by the obsession of a fixed idea, etc.; why, in fact, since the sensations which seem not to be perceived exist in reality in the sub-conscious state, these anesthesias do not entail grave perturbations in the automatic functions of these patients; finally, why these anesthesias are a matter of indifference to the patients and sometimes exist without their knowledge. Janet thinks that the interpretation which he has proposed of the tactile anesthesias may equally be applied to all the sensorial anesthesias, and that it makes comprehensible the particular characters of hysterical amblyopia. It is quite natural that the patient should neglect from the first the sensations which correspond to the eccentric parts of the visual field, and that he should perceive only the images the nearest the point of fixation. Hence the concentric form of the contraction of the visual field.

## INSPECTION OF MEAT.

Dr. Legge, in a paper entitled "Notes on some Continental Abattoirs," contributes certain valuable information to *Public Health*[1] upon the inspection of meat. He acknowledges that England is about twenty years behind the Continental cities in this matter. It is unnecessary to estimate how much behind some of our own American States would be placed; but the subject has its interest in connection with bills to promote or hinder inspection of food products now or lately before State Legislatures.

In Paris the seizure of meat is considered justified and is made (1) when deprived of all edible qualities; (2) when the eating of it might be followed by injurious consequences; (3) when from some reason or other it has derived qualities rendering its taste repugnant.

Under the first head comes the flesh of animals that have been killed too young, and of those that are either dropsical or cachetic; under the second that of animals affected with disease, such as fever, septicemia, anthrax, tuberculosis, etc.

The signs which guide the inspector in condemning the flesh of cachectic animals are chiefly the wasted condition, the absence of fat about the omentum, and the lack of resistance in the muscular tissue. With regard to animals that have died of inflammatory diseases the signs are: (1) a general tarnished coloration, more or less deep red; (2) a capillary injection of the fat, which in extreme cases is penetrated deeply by it; (3) aborescent markings on, and a tendency to a livid coloration of the serous membranes; (4) a violet tint of the kidneys; (5) a brown or blackish coloration of the spongy bone, seen best in the vertebræ; (6) loss of firmness in the muscular tissue. In Brussels the conditions under which the flesh of tuberculous animals is seized, no matter how good its general condition, are —

I. (*a*) Tubercle having its seat in both the thorax and abdomen. (*b*) Tubercle, whether it be thoracic or abdominal, with presence of tubercles in any other

[1] Public Health, vol. vi., September, 1894, p. 402.

part of the body outside these cavities. (*c*) Tubercle generalized in the following organs: lungs, pluræ, peritoneum, liver or mesenteric glands. (*d*) Tubercle of the lungs or pericardium involving the pleura extensively. (*e*) Tubercle of any organ of the abdomen involving the peritoneum extensively.

II. Tubercle observed in no matter what part of the body, or what the number of tubercles, when the animal is markedly wasted.

No slaughtering can take place in Berlin except at the abattoir, and no meat can be sent away from the abattoir without first being stamped as having passed the expert examination. The inspection is entirely in the hands of veterinary surgeons. They make first a rough inspection of the carcase, and cut into the glands of the neck, especially the retro-pharyngeal. The liver and lungs of every animal must also be cut into by the veterinary surgeon. If the appearances are suspicious, he further examines the spleen and the various glands of the body.

The flesh of all animals affected with tubercle, but not so extensively as to justify total seizure, and of those in which only a few cysticerci are found, is cooked for two hours in boiling water, and twice a week sold to the poor for a trifle.

In Copenhagen, also, a slaughter of animals can take place only at the abattoir, where the veterinary inspection also is made. All the animals are first inspected as they stand in the market, and any animal found with dangerous infectious disease is isolated and slaughtered apart from the others. None of the organs may be removed until the veterinary surgeon has been his rounds. The latter, after a general inspection of the carcase, cuts into the glands of the neck, examines the pluræ, peritoneum, lungs and liver, and should there be nothing wrong with them, allows the meat to be stamped with a blue mark as of good quality. If he finds any inflammation or suppuration about them, he undertakes a methodical examination, not only of those of the neck, but also of the submaxillary, axillary, bronchial, mesenteric, inguinal and lumbar glands. Cysticerci are always looked for by cutting into the muscles at the root of the tongue. Tubercle when generalized, is deemed a sufficient cause for seizure, but not when localized. A black stamp is freely used to mark meat as of second-class quality, which is not considered sufficiently diseased to warrant total seizure.

## MEDICAL NOTES.

EPIDEMIC OF CEREBRO-SPINAL MENINGITIS. — A representative of the Kentucky State Board of Health, who was sent to investigate an epidemic recently prevailing in Floyd County, reports that the disease was cerebro-spinal meningitis. There were twenty-five cases (with twenty deaths) in an area of four miles in a low country between two creeks. The epidemic occurred among a very poor class of people, living under the worst sanitary conditions.

MORTALITY IN THE JAPANESE ARMY. — According to *La Médecine Moderne*, the *Official Gazette* of Japan reports that from July 16 to December 6, 1894, the total number of killed and wounded was about 350, and the deaths from sickness but 430. Although the losses of the navy are not included in these figures, it is not probable that they would bring the total losses for the first five months of the war to a number greater than between 1,200 and 1,300, which is certainly remarkably small, when one considers the magnitude of the scale upon which operations have been carried on. The Japanese disposed of the bodies of their dead by cremation rather than interment.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, April 10, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 33, scarlet fever 38, measles 215, typhoid fever 6.

A BILL TO PROHIBIT CHILD INSURANCE. — The Committee on Insurance of the Massachusetts Legislature has reported to the House of Representatives a bill to prohibit child insurance in this Commonwealth. The bill is the same as that asked for by the petitioners; it fixes the age limit at ten years, with the exception that a penalty of one hundred dollars is attached for every violation of the act.

MEDICAL REGISTRATION ACT. — The Committee on Public Health reported to the Massachusetts Senate an amendment to the present law relating to the registration of physicians and surgeons by providing that Section 10 shall read as follows: "Whoever not being registered as aforesaid, shall advertise or hold himself out to the public as a physician or surgeon in the Commonwealth, or appends to his name the letters 'M.D.' or uses the title of doctor, meaning thereby a doctor of medicine, shall be punished by a fine not less than $100 nor more than $500 for each offence, or by imprisonment for three months, or both."

### NEW YORK.

DIPHTHERIA ANTITOXIN NOT THE CAUSE OF MISS VALENTINE'S DEATH. — Dr. John M. Clayland, coroner's physician, who made the autopsy on the body of Miss Valentine, of Brooklyn, has made the following report: "Puncture on the left side of the abdomen, not penetrating the cavity; brain congested, lungs normal, blood fluid, left heart empty, right heart containing a small amount of fluid blood, liver and kidneys congested, especially the latter. No edema. Larynx normal. The fauces contained diphtheritic false membrane. Cause of death, convulsion, due to the injection of diphtheria antitoxin." Dr. Wilson, Chief Bacteriologist to the Brooklyn Board of Health, has reported officially: "Speculative theories may be advanced as to the cause of death in this case, the true cause not having yet been determined; but my experiments, conforming as nearly as possible to the actual

condition, demonstrate that the cause was not inherent in the antitoxin." Dr. Wm. H. Park of the bacteriological department of the New York Board of Health, has also reported: "My experiments lead me to express the opinion that the unfortunate results which followed its administration in this specified case cannot be attributed in any way to the antitoxin which was employed."

Anti-Vaccination Leagues. — At one time during the past winter there were a considerable number of cases of small-pox at Newburgh-on-the-Hudson, and unvaccinated children have been excluded from the public schools. The legality of this proceeding was strenuously opposed by the Anti-Vaccination League of Newburgh. On April 3d Judge Barnard refused the application of the League for a mandamus requiring the Board of Education to permit children who had not been vaccinated to attend the schools. The court held that the law of 1893, requiring vaccination, was not repealed by the compulsory education law of 1895. A despatch from New Haven, dated April 5th, announces that Harold Wilson, a Yale student who is a son of the president of the Newburgh Anti-Vaccination League, was ordered by the Faculty to leave college because he refused to be vaccinated after a chamber-maid at the house at which he boarded had been taken down with small-pox.

Saturday and Sunday Hospital Funds. — The Distributing Committee of the Hospital Saturday and Sunday Association met at the mayor's office on April 3d and distributed the undesignated fund of the collection of 1894. The sum distributed (after deducting necessary expenses and exclusive of the special amounts, aggregating $7,314, designated for particular hospitals), amounted to $40,000. The distribution was made, as usual, on the amount of free care bestowed by the various institutions during the year. The sums awarded to hospitals receiving over $2,000 were as follows: Montefiore Home for Chronic Invalids, $4,794; St. Luke's Hospital, $4,783; Mount Sinai Hospital, $4,714; German Hospital, $3,877; Roosevelt Hospital, $3,319; Hospital for Ruptured and Crippled, $2,861.

## Miscellany.

### A SUCCESSFUL CASE OF CARDIOCENTESIS.

Dr. Allan T. Sloan[1] reports a case in which the right ventricle was accidentally tapped during a hurried attempt at paracentesis of the pericardium, on a patient in extreme collapse.

The patient was a woman nineteen years old, in whom a sharp attack of facial erysipelas was followed by acute rheumatism, and finally by pericarditis with effusion. The collapse was so extreme that although there was marked increase of cardiac dulness, it was not thought safe to perform paracentesis. When this condition of things had persisted for two days, Dr. Sloan was hastily summoned by the report that his patient had just died. He found her with a pulse that could not be counted and barely could be felt, the pallor of the skin and expression of the face indicating approaching death. After two subcutaneous injections of ether the pulse and respiration stopped. The rest of the story is best told in Dr. Sloan's own words:

"In the moment of excitement I jumped up, seized the aspirator, and plunged the needle into the fourth interspace, about half an inch to the left of the sternum and a little below the left nipple. To my astonishment, from eight to ten ounces of pure blood flowed rapidly into the bottle of the aspirator and then suddenly stopped, and to my dismay I found I had penetrated a cavity of the heart. As I was slowly withdrawing the canula, regretfully telling the nurse that it was all over, and to close the patient's eyes, to my surprise the heart made first a feeble, irregular movement, then gave a sudden strenuous jump, and finally, like a pendulum regaining its swing or a runner his stride, it started to beat again in the race for life. In moments of intensity, it is difficult to estimate time, but I should say fully half a minute had elapsed between the introduction of the needle and the restarting of the heart-beats. It was an extraordinary sensation to feel the heart beating more and more forcibly against the point of the canula, which was gradually withdrawn so as not to further injure the heart-wall. I was standing thus, with my thumb on the puncture made by the needle, when Drs. Bramwell and Smith made their welcome appearance. My uppermost feeling at first was one of regret that I had converted a patient practically dead into one apparently dying, and sincerely did I lament she had not been left to pass away in peace, for a most pitiful scene was now enacted for an hour. Occasionally there was given a heart-rending shriek; quantities of frothy mucus were half-coughed, half-vomited, and had to be swept out of the mouth with a towel; the blood went ebbing and flowing from the cheeks, which were first ashy-gray then purplish in hue; the pupils were dilated to their fullest extent; the running, following pulse was quite uncountable; and the patient had every appearance of one dying asphyxiated."

To make a long story short, the cardiocentesis was followed by free stimulation with ether given subcutaneously, under the influence of which the patient became maniacal, and required morphia to quiet her. This treatment was soon followed by marked improvement. Under free stimulation with brandy and champagne, the improvement continued, and two days after the operation, the temperature fell to normal and the pulse to 40.

Within two months the patient was well enough to be sent into the country, and six months later was in perfect health.

The cure of a case of acute rheumatism, apparently of septic origin, by draining off ten ounces of blood directly from the heart is certainly a most brilliant therapeutic success. Whether the same favorable result would have followed the tapping of the pericardium, which was the operation actually attempted, of course will never be known. The stimulation of the heart-muscle by the needle puncture probably had more effect in reviving its enfeebled action than the actual abstraction of blood from its cavity. It is an interesting question whether the actual stimulation of the heart-wall by the needle or canula does not contribute

[1] Edinburgh Medical Journal, February, 1895.

perhaps as much to the success of pericardial paracentesis as the relief of pressure by the withdrawal of fluid.

In going over the literature on the subject, Dr. Sloan finds that in 1872 Roger accidentally thrust the needle through the right ventricle while tapping the pericardium for effusion, withdrawing six ounces of blood. The patient (a child) recovered, but died five months later from failure of compensation.

Other cases of cardiac puncture have been reported, some resulting in relief, but none in permanent cure. In view of these facts, and of the numerous reported cases of the survival for a longer or shorter time, and even in rare cases of recovery after wounds of the heart-wall, Dr. Sloan concludes that, in all cases of asphyxia, such as suffocation by drowning, carbonic-acid poisoning, accidental hanging, and chloroform narcosis, after other remedies have failed, this one should be tried. If an aspirator needle is not at hand, puncture with a hypodemic syringe might give surprising results. In all desperate cases of engorgement of the right heart, where death is imminent, even when due to pneumonia or bronchitis, when other remedies have failed, Dr. Sloan thinks that "a possible chance of saving life might be lost if cardiac aspiration were not attempted."

## Correspondence.

### LETTER FROM DENVER.

Commonplace Facts for Prospective Sojourners.

Denver, Col., March 28, 1895.

Mr. Editor: — I read with much interest, in a recent number of the Journal, a communication from Redlands, Cal. Your correspondent touches also upon a point which seems to me much neglected by many physicians in sending their patients to distant health-resorts. The ways and means of living in such places are too often overlooked, even by physicians who are professedly acquainted with various resorts, in favor of a theoretically perfect climate. This oversight is even more marked in the published articles of climatologists, which, valuable as they are in other respects, often fail to tell the facts most desired by the general practitioner. A table of mean temperatures and relative humidity may point to the speedy death of tubercle bacilli, but it may be equally poor diet for a man; and the warmest, dryest air may not compensate for greasy and unsuitable food.

Having had occasion to spend the past winter in Denver, many of the ways of living here have come under my notice. It may be of interest to your readers to know some of these unstatistical, practical facts.

Denver is about twelve miles east of the foothills of the front range of the mountains, and lies domestically, though not municipally, on both sides of the South Platte River, which runs from south to north. In the middle of its way through the city, it trends about thirty degrees to the east. The westerly bank rises in a sharp slope about one hundred and forty feet, while this elevation is not reached on the east till about two miles from the river. The valley along the river is naturally given over to factories and the numerous railroads. The smelter works are about two miles and a half to the northeast and in the river basin. As the prevailing winds are from the south and southwest, they drive the smoke from the increasingly numerous factories, all of which burn soft coal, down the valley through the city. This is ordinary smoke, though plentiful. A change of wind to north or east drives this back, and with it sends the suffocating acrid smoke from the smelters into the city. Clean linen is here a virtue, a struggle and an expense. To get clean fresh air one must live out of the city at least two miles to the east. To the west the quick rise makes a less distance needful, but the west side is not the desirable district for a residence.

Now, accommodations for living in such parts of the suburbs as are free from smoke are not easy to find. There are boarding-houses in abundance, of course, but few suitable for an invalid, as a large proportion of the families who take boarders have members suffering from pulmonary disease. There is consequently the infected air of the house and the depression of sickness.

Aside from the fine residences of the wealthy, most of the houses are small. They rarely have a veranda at all suited for an invalid; and by actual count over many blocks more than half were on the north side of the house. A surprisingly large number of the moderate-sized houses have but one window on the south side and all the chambers on the north. In a country where there is so much strong sunshine this is of less importance but it is still a disadvantage.

Far harder than to find a pleasant house, is it to find fit cooking. There are good cooks in Denver, as I know from kind hospitality; but they do not abound in the homes of those who take boarders, general or "private." Fried and fatty, is the rule. I have personal friends here this winter who have changed from one good "first-class" house to another four times in as many weeks, jumping each time literally from the frying-pan. For a person of limited means it is even more difficult to get good food. It is not the fault of the material, for meats are excellent and cheap, but of the western custom of cooking. This difficulty of getting a good boarding-place is not confined to Denver, and is probably less here than elsewhere; but, where even the best are poor, one should come prepared to spend no short time in getting settled. I was considered exceptionally fortunate in doing so after two weeks' hunt.

Should one desire to keep house, there is less trouble. There are many small houses to be had. A comfortable house of six or seven rooms, in a locality both socially and atmospherically good, rents for from twenty-five to forty dollars a month. All the houses are of brick and few have an air-space between the bricks and plastering. The woodwork, no matter how well done, soon shrinks and pulls away, so that the cracks are many and large. The soil is so dry that few cellars have any flooring. Within the city there is both electric light and excellent gas. Most of the suburbs have electricity, but between them and the city there is a limbo of kerosene twilight.

Domestic service is high and poor. A servant to do general housework for a small family gets twenty or twenty-five dollars a month, and for good help more must be paid. There is the usual difficulty in getting them to live out of town, and help of the ranch variety is hardly trained to cook for invalids.

The subsequent cost of living does not vary much from that in the East. Meats are very cheap and of first-rate quality. Game is plentiful and of low cost. Groceries are higher than in Boston. Vegetables are abundant. The fuel is soft coal and lignite, and costs about four dollars and a half a ton. Anthracite brings nine dollars a ton.

The most important single feature to be sought in choosing a house should be a veranda or balcony sheltered from the wind and with a southerly exposure. On such a piazza an invalid can sit with light wraps for from four to seven hours a day all through the winter, even when the temperature of the air is as low as twenty. Being out of the wind, the thermometer in my south loggia has often been forty degrees higher than the air around. For one who does not succeed in finding such a house, the large and attractive City Park gives opportunity for sitting out-doors away from the street. It is abundantly supplied with *comfortable* seats, and is in the part of the city suited for an invalid.

For occupations the visitor has, first, the street-car rides. They are many and interesting. The cars, run by cable or electricity, are in pairs, one open and one closed; and there are few days in the winter when the open car can not be used. With a rug over one's knees the riding is

no exposure provided it is not windy. For ten cents one can ride fifteen miles in view of the magnificent mountain range. A generous system of transfers allows many changes of route. Horse-hire is cheap, if not taken from large livery-stables. In the outskirts of the city where we are living, I can have a saddle-horse kept for nine dollars a month. At many of the small ranches you can hire a buggy for an occasional drive. At present I have the use of a saddle-horse every morning, as the ranchman uses it only in the afternoon, for a dollar and a half a week. Another member of my family has a much better horse for which we pay thirty cents an hour. Such bargains are readily made if you live away from the city.

Society in Denver itself is delightful, but living away from town here is not like living in Brookline. It means more or less complete isolation, according to the distance. We have one house within half a mile of us, though we live within five miles of the City Hall. The school facilities, for one who has children to bring with him, are most ample and excellent. There are two good libraries whose privileges are generously open to strangers. There is a fine athletic club and the beginnings of a country club.

A few features of the climate are worth mention, though they seldom appear in the climatological schedules. Many days, though warm and sunny and statistically perfect, are far too windy for any but the strong to be out in. While the wind may last but a short time it rises suddenly, and the exposure in reaching home may be great. The dust-storms are less frequent, but more trying. The changes in temperature are marked and sudden, and while they have little effect on the total thermal result of the month, they are a tax on the vitality of an invalid. I do not speak of the extreme cold this winter, which is unusual, but of the alternations on single days which have been called to my attention as typically fine days. It is no safer here than in Boston to go far from home without a wrap. March here is warm, to be sure, but it is blustery.

The attractions of Denver as a city, and the advantages it offers of several suburbs, such as Montclair or University Park, which are entirely free from smoke, make it an excellent headquarters for an invalid. The tables of climatologists tell us the therapeutic value of the climate, but they can give no picture of the charm of continued sunshine and soft dry air, or of the wonder and joy of each successive fine day. They give us few facts beyond the averages of meteorological conditions; and yet these commonplace facts play a large and important part in an invalid's life. It is in hope of being of aid to some prospective sojourner, that I venture to send you so plain a tale.

Yours truly,

CARROLL E. EDSON, M.D.

## IN MEMORIAM. J. M. CHARCOT.

MR. EDITOR: — We wish to call the attention of the physicians of Boston to the fact that a fund is being raised to commemorate by a suitable memorial the remarkable services of the late Dr. Charcot, and that, although no special committee has been formed to receive subscriptions in Boston, the undersigned gladly undertake this office.

Charcot was one of the physicians through whose name and work this century will stand distinguished. Unknown and penniless at the beginning of his career, his industry early gained him the honors of a trained observer, while his genius and imagination enabled him to throw light into the dark corners, not of neurology alone, but of many departments of pathology and medicine.

To his intelligence and energy it is due that the Salpêtrière was transformed from an almshouse unknown to physicians, into a great hospital, to which young men, ready to work hard at original research, were eager to flock, with what results for the progress of medicine we all know well.

We believe that the physicians of our city will be glad of this opportunity to honor the memory of a great man and a great physician.

The amount subscribed here, however, is still considerably less than that subscribed in New York and Philadelphia.

Subscriptions have been received from the following gentlemen, in sums varying from two to twenty dollars: R. T. Edes, G. L. Walton, George B. Shattuck, H. P. Bowditch, Walter Channing, James J. Putnam, J. B. Ayer, H. B. Howard, F. B. Greenough, F. C. Shattuck, P. C. Knapp, and the Medico-Psychological Society.

Dr. C. A. Herter, of New York, is Secretary of the Committee having charge of the subscriptions in this country.

The memorial will consist in part of a statue, to be placed in the Salpêtrière.

JAMES J. PUTNAM, M.D., 106 Marlboro' St., Boston.
PHILIP COOMBS KNAPP, M.D., 33 Marlboro' St., Boston.

## VIVISECTION: A REPLY TO H. C. WOOD, M.D.

BOSTON, April 8, 1895.

MR. EDITOR: — Although most physicians might deem themselves competent to act without advice in the matter of replying to the temperate appeal of the American Humane Association, words of wisdom and solemn warning addressed to us in a judicial spirit by those eminent in the profession should be treated with consideration and due deference. In his communication in the last number of the JOURNAL, Dr. Wood does not fail to appreciate that he has assumed a somewhat delicate task; and the preliminary excuse which he deems it incumbent to offer for tendering gratuitous counsel, though not very flattering to our self-pride, may upon the whole be accepted, and perhaps in a spirit of thankfulness. He should certainly be encouraged in all reasonable efforts to guard us from committing indiscretions such as might make us appear eccentric or ridiculous in the estimation of the laity. When, however, he makes delinquencies upon the part of distant colleagues a pretext for observations not strictly in harmony with facts, he must not be surprised if we subject him to a little catechising.

Does he really believe that New England physicians are likely to be taken in by allegations which involve the "wildest fanaticism?" If not, what emergency then calls for this unsolicited advice?

Dr. Wood, who is an erudite and experienced teacher and writer, understands that novel, sweeping assertions should be backed by some well-authenticated evidence, especially when addressed to medical men upon scientific questions; and he therefore begins by putting forward a proposition designed to meet just this requirement. But, strangely, in the single paragraph cited to reinforce his philanthropic appeal, and which, by the way, I have searched for in vain in the documents mailed to me, he utterly fails to designate an erroneous or even inaccurate statement. It is perfectly true, precisely as stated in the paragraph quoted by him with unqualified disapproval, that in most of our States scientific experimentation has not yet been hampered by restrictive legislation; and for the reason most creditable to our profession, that vivisection has been practised, as I believe, humanely with intent to minimize suffering. Hence attempts at prohibitory or restrictive legislation have generally been ineffective; and Dr. Wood, who writes not without premeditation or careful preparation, does not advert to a single State law directed against experiments upon animals. Indeed, shying from this point, he falls back with tinsel logic upon the general laws against cruelty which are not under consideration.

Now, is it not possible that this advocate of decorum has underrated our intelligence when he expects us to acquiesce in his declaration that "the college instructor or student is just as liable to punishment as is the carter or huntsman who abuses the horse or dog?" For why should we not know, just as well as he knows, that while all are indeed *amenable* alike to general laws, there can be no comparison between the liability to apprehension and punishment for

acts of manifest brutality committed in public, and cruelty, perhaps legitimate and justifiable, inflicted by physiologist or students in pursuit of scientific investigations and within the walls of the private laboratory?

From the tenor of the circulars issued, and in view, moreover, of the high standing and intelligence of many who have seen fit to identify themselves with this organization, I can conceive of no ground for the unsympathetic imputation of present or future dishonesty or bad faith. Over-enthusiastic reformers, as well as some officious counsellors, are too apt to base their extravagant protests upon fictitious reports or perhaps a misapprehension as to essential facts, and thereby unwittingly furnish ammunition to the adversary. All such emotional effusions, whether emanating from reckless agitators or distinguished scientists, may with propriety be treated with indifference, as the product of a morbid psychological state forming one of the manifold manifestations of hysteria. In the exceptional instance of the circular in question, the object appears to be an honest attempt to elicit from medical men a recorded expression of opinion in a matter concerning which they are especially qualified to judge and in which their views may therefore carry more than ordinary weight.

Yours with respect,

ARTHUR H. NICHOLS, M.D.

## A REPLY TO PROF. H. C. WOOD.

CAMBRIDGE, MASS., April 6, 1895.

MR. EDITOR: — It is not in accord with my ideals of professional honor and veracity, to quote from a printed document, a garbled extract, and — omitting all mention of the proofs that immediately follow on the printed page — to boldly denounce it as a "lie." That offence Prof. H. C. Wood has unfortunately permitted himself to commit in the letter which appeared in your issue of this week. I shall not follow his example, and call his untruths by the Saxon word "lies," because falsehood implies deceitful intent,— and Professor Wood is a member of the medical profession, to which I have the honor to belong. It is more probable, I fancy, that, blinded by the white heat of his well-known enthusiasm for that unbounded liberty which led Magendie and Claude Bernard into infamous cruelty, he forgot, in his zeal, that as an apostle of science, his first duty was absolute accuracy and fidelity to fact; and that no skill in the laboratory excuses forgetfulness of the decencies of debate. Still, "it is astounding, that even the wildest fanaticism" should permit a man of his standing to be guilty of perversions so easily detected and so absolutely unfair.

(1) Professor Wood makes no quotation from either of the two circulars issued by the *American Humane Association*, though he speaks of their "positive false statements." The slip from which he prints an incomplete extract is simply a letter from the President of the Association, and it formed no part of the general investigation.

(2) *His quotation from this letter was garbled.* "To garble," says Webster, is "to pick out such parts as may serve a purpose," and that is what he did. Permit me first to quote the few words which so unduly inflamed him, and to follow them with that proof of their accuracy which Professor Wood most carefully omitted in his letter to you:

> "While State laws generally prohibit cruelty, yet, *in the great majority of cases, there is no law, no college rule, or regulation even*, preventing the infliction upon living animals of the utmost conceivable torture, *so long as it is done within the walls of the college laboratory and by permission of the instructor.*"

This statement Professor Wood stigmatizes as false. But why did he omit and evade the evidence on which it rested, and which immediately follows?

> "*The proof of this statement rests upon replies made by different college presidents to letters of inquiry.*
>
> "President Harper of the University of Chicago writes: 'We have not thought it wise to place any restriction upon experimentation involving prolonged or severe pain.' President Patton of Princeton said: 'The College of New Jersey has not defined or limited the extent to which living animals may be subjected to pain.' President Dwight of Yale, answered: 'We have had no occasion to lay down any definite restrictions as to the matter to which your refer.' President Jordan of Stanford University, going still further, says: 'I am decidedly of the opinion that *no restrictions should be put upon the student*, except those which the professor may lay upon him.' The idea finds wide acceptance that infliction of extreme pain is simply a question for the instructor to decide. 'We have felt that the matter could be safely left *to the discretion of the preceptor*,' says President Rogers of the Northwestern University. President Carter of Williams College states that 'the principle has always been to *trust the professor wholly* unless there seemed reason for distrust.' 'We leave the decision *to the judgment of the investigator*,' says President Day of Syracuse University. These quotations by no means exhaust the list, but they indicate the freedom that now exists."

So far from being false, the *one* statement to which Professor Wood specifically objected is absolutely, accurately true. When he asserts that a college student or instructor "guilty of cruelty," would be amenable to the laws of the land, he fights windmills; for who has ever doubted it? How does the law of the State affect in any way the bungling experimentation of a student, on the nervous system, by permission of his superior and in the privacy of the laboratory?

Apparently Professor Wood assumes that I am an anti-vivisectionist. He is wrong. Not only do I believe in vivisection within certain limits, but I have practised it. Of the four statements presented by the American Humane Association, I have signed with slight alterations — the one favorable to vivisection restricted by utility to mankind. What, then, have I opposed for the last fifteen years? *The introduction into America of the foreign ideal of scientific research*; the widening opportunity for abuse. Does one say that at the hands of a learned and expert scientific investigator "abuse" is impossible? Permit me to quote from a letter received but yesterday from a Massachusetts physician and one of your subscribers:

> "When I was studying medicine in Paris, it was the custom of a distinguished physiologist to illustrate his lectures by operations on dogs. Some of these dissections were not very painful, but others were attended with excruciating, long-continued agony; and when the piteous cries of these poor brutes would interrupt his remarks, with a look of suppressed indignation, he would artistically slit their windwipes, and thus prevent their howling! Curiosity prompted me to inquire of the janitor, whether after this period of torment, these creatures were mercifully put out of misery, and I ascertained that such animals as did not succumb to the immediate effects of their mutilations were consigned to a cellar, to be kept, unattended and unfed, until wanted for the following lectures, which occurred on alternate days. . . . I never noticed the slightest demonstration of sympathy in their behalf, except on the part of a few American students. These dogs were subjected to needless torture, for the mere purpose of illustrating well-known, accepted facts, capable of being taught satisfactorily by drawings, charts and models. . . . I entertain no doubt that barbarous cruelty was practised at that time in all the Parisian physiological laboratories, though it is probable that for novel and horrible experiments, none could rival the infernal ingenuity of that master-demon, Claude Bernard."

Who was this "master-demon?" The most renowned physiologist in Europe; a man honored with prizes by the French Academy, with a public funeral at the cost of the government, and for whose monument subscriptions were asked in England and America. But for one, much as I love scientific truth, I do not believe in methods like these, nor in that secrecy which makes them possible in American laboratories. And when Professor Wood denies that abuses occur in this country, permit me to refer him to the editorial pages of *The Therapeutic Gazette*, a journal with which he is familiar: "Vivisection is grossly abused in the United States. . . . We would add our condemnation of the ruthless barbarity which is every winter perpetuated in the medical schools of this country. History records some frightful atrocities perpetrated in the name of religion; but it has remained for the enlightenment and humaneness of this century to stultify themselves by tolerating *the abuses* of the average physiological laboratory — all conducted in the name of Science." (August, 1880.)

I am, sir, etc., ALBERT LEFFINGWELL, M.D.

## METEOROLOGICAL RECORD.

**For the week ending March 30th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—**

| Date. | Barometer | Thermometer. | | | Relative humidity. | | Direction of wind. | | Velocity of wind. | | Weather. | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..24 | 30.34 | 42 | 52 | 32 | 60 | 76 | 68 | S.W. | S.W. | 12 | 10 | F. | O. | |
| M..25 | 29.94 | 42 | 50 | 34 | 81 | 79 | 80 | S. | S.W. | 8 | 9 | O. | C. | .10 |
| T..26 | 29.76 | 42 | 49 | 36 | 59 | 60 | 60 | W. | N.W. | 10 | 20 | C. | F. | |
| W..27 | 29.78 | 37 | 46 | 29 | 50 | 51 | 51 | N.W. | W. | 16 | 7 | F. | O. | |
| T..28 | 29.42 | 36 | 40 | 32 | 92 | 59 | 76 | W. | N.W. | 11 | 19 | O. | C. | .31 |
| F..29 | 29.92 | 36 | 44 | 29 | 50 | 44 | 47 | N.W. | W. | 20 | 11 | C. | O. | |
| S...30 | 30.06 | 33 | 38 | 28 | 58 | 44 | 51 | N.W. | N.W. | 22 | 15 | C. | C. | .04 |
| ☞ | | | | | | | | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall ☞ Mean for week.

## RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, MARCH 30, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diarrheal Diseases. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,956,000 | 900 | 332 | 12.65 | 16.61 | .88 | 5.83 | 2.31 |
| Chicago | 1,660,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | — | — | — | — | — | — | — |
| Brooklyn | 1,043,000 | 411 | 140 | 11.28 | 17.04 | .72 | 6.72 | 1.44 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 242 | 63 | 9.02 | 23.78 | — | 5.33 | 1.23 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | — | — | — | — | — | — | — |
| Cincinnati | 325,000 | 143 | 40 | 4.90 | 19.60 | — | .70 | — |
| Cleveland | 325,000 | — | — | — | — | — | — | — |
| Pittsburg | 272,000 | — | — | — | — | — | — | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 42 | 7 | 4.76 | 35.70 | — | — | 2.38 |
| Charleston | 65,1e5 | — | — | — | — | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 45 | 14 | 6.66 | 22.22 | — | — | — |
| Fall River | 92,233 | 59 | 19 | 17.92 | 30.72 | 7.68 | — | 7.68 |
| Lowell | 90,613 | 37 | 16 | 5.40 | 18.90 | 2.70 | — | — |
| Cambridge | 79,607 | 20 | 5 | 10.00 | 10.00 | 5.00 | 5.00 | — |
| Lynn | 65,123 | — | — | — | — | — | — | — |
| Springfield | 50,?84 | 24 | 8 | 16.64 | 29.12 | — | 4.16 | — |
| Lawrence | 49,900 | — | — | — | — | — | — | — |
| New Bedford | 47,141 | 20 | 6 | — | 20.00 | — | — | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | — | — | — | — | — | — | — |
| Salem | 33,155 | 14 | 4 | 14.28 | 7.14 | — | 7.14 | — |
| Haverhill | 32,925 | 14 | 5 | — | 14.28 | — | — | — |
| Malden | 30,209 | 10 | 5 | 20.00 | 20.00 | — | 10.00 | 10.00 |
| Chelsea | 29,806 | 9 | 0 | 11.11 | 11.11 | — | 11.11 | — |
| Fitchburg | 29,383 | 10 | 3 | — | 30.00 | — | — | — |
| Newton | 28,837 | 5 | 1 | — | 20.00 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,584 | 10 | 2 | — | — | — | — | — |
| Waltham | 22,058 | 6 | 1 | — | 66.66 | — | — | — |
| Quincy | 19,642 | — | — | — | — | — | — | — |
| Pittsfield | 18,892 | 6 | 3 | 16.66 | 16.66 | — | — | — |
| Everett | 16,585 | 4 | 1 | — | — | — | — | — |
| Northampton | 16,531 | 2 | 1 | — | — | — | — | — |
| Newburyport | 14,073 | — | — | — | — | — | — | — |
| Amesbury | 10,920 | 4 | 0 | 25.00 | — | — | — | — |

Deaths reported 2,112: under five years of age 706; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 228, acute lung diseases 402, consumption 250, diphtheria and croup 103, measles 27, scarlet fever 40, diarrheal diseases 19, cerebro-spinal meningitis 12, erysipelas 9, whooping-cough 8, typhoid fever 6, malarial fever 2, small-pox 2.

From measles New York 14, Brooklyn 7, Cincinnati 3, Springfield 2, Boston 1. From cerebro-spinal meningitis New York 6, Somerville 2, Boston, Fall River, Pittsfield and Amesbury 1 each. From erysipelas New York 8, Boston 1. From whooping-cough Brooklyn 3, New York 2, Boston, Worcester and Salem 1 each. From typhoid fever New York and Boston 2 each. Cincinnati and Lowell 1 each. From malarial fever New York and Nashville 1 each. From small-pox Cincinnati 2.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 30, 1895, TO APRIL 5, 1895.

The following named officers are detailed to represent the Medical Department of the Army as delegates at the annual meeting of the American Medical Association to be held at Baltimore, Md., May 7 to 10, 1895: — LIEUT.-COL. WM. H. FORWOOD, deputy surgeon-general; MAJOR CHARLES K. WINNE, surgeon; MAJOR WALTER REED, surgeon, and CAPT. HARRY O. PERLEY, assistant surgeon. They will proceed from their respective stations in time to reach Baltimore on May 7th, and upon the adjournment of the meeting will return to their proper stations.

The following named officers are detailed to represent the Medical Department of the Army as delegates at the annual meeting of the Association of Military Surgeons of the United States, to be held in Buffalo, New York, May 21 to 23, 1895: — LIEUT.-COL. DALLAS BACHE, deputy surgeon-general; MAJOR PHILIP F. HARVEY, surgeon; CAPTAIN DANIEL M. APPEL, assistant surgeon. They will proceed from their respective stations in time to reach Buffalo on May 21, 1895, and upon adjournment of the meeting will return to their proper stations.

CAPTAIN RUDOLPH G. EBERT, assistant surgeon, relieved from duty at Fort Huachuca, Arizona, and ordered to Fort Columbus, New York, for duty at that post.

CAPTAIN PAUL SHILLOCK, assistant surgeon, relieved from duty at Fort Wingate, New Mexico, and ordered to Madison Barracks, New York, for duty at that post, to relieve CAPTAIN ROBERT B. BENHAM, assistant surgeon.

CAPTAIN BENHAM on being relieved by CAPTAIN SHILLOCK, will report in person for duty at Fort Wingate, New Mexico.

The leave of absence on account of sickness, granted LIEUT.-COL. JOSEPH R. GIBSON, deputy surgeon-general, is still further extended six months on surgeon's certificate of disability.

Leave of absence for three months, to take effect on the expiration of his present sick leave, with permission to leave the United States, during May and June, 1895, is granted CAPTAIN WILLIAM C. SHANNON, assistant surgeon.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held at the Medical Library on Monday evening, April 15th, at 8 o'clock.

Dr. J. A. Tanner will report "A Case of Spontaneous Perforation of the Heart, with Obscure Symptoms."

Dr. W. T. Whitney, Dr. H. F. Vickery, Dr. J. Homans and Dr. F. B. Mallory have been asked to take part in the discussion.

Dr. E. E. Jack will present a paper on "Ophthalmoplegia Externa, total, bilateral." Discussion opened by Dr. M. Standish.

JAMES G. MUMFORD, M.D., *Secretary.*

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT. — The Section for Clinical Medicine, Pathology and Hygiene, will meet at 19 Boylston Place, on Wednesday evening, April 17th, at 8 o'clock.

Dr. A. K. Stone: "Clinical Notes from Hospital Service."

Dr. Edw. Wyllys Taylor: "A Case of Tabes Dorsalis with an unusual Complication."

JOHN L. AMES, M.D., *Secretary.*

## RECENT DEATH.

DR. PETRONIO, Professor of Surgical Pathology and Teacher of Surgery in the University of Naples, died on March 1st at the age of fifty-five. He published several works, including "A Guide to Clinical Surgery." He was Director of the Hospitals della Pace and Pellegrini, and of the lunatic asylum. He also took an active part in politics, and was Radical deputy for Caserta.

## BOOKS AND PAMPHLETS RECEIVED.

Proceedings of the American Microscopical Society, Seventeenth Annual Meeting held at Brooklyn, N. Y., August 13, 14 and 15, 1894.

Cylindroma Endothelioides of the Dura Mater causing Localizing Symptoms and Early Muscular Atrophy. By L. Bremer, M.D., and N. B. Carson, M.D., of St. Louis, Mo. Reprint. 1895.

Left Hemiplegia followed by Loss of the Deep and Superficial Reflexes, Considerable Muscular Atrophy, Marked Anesthesia in the Distal Portions of the Limbs, Loss of Faradaic Irritability and Reaction of Degeneration of the Muscles on the Paralyzed Side. By J. T. Eskridge, M.D., Denver, Col.; with remarks by Frederick Peterson, M.D., New York. Reprint. 1895.

# Original Articles.

## METHODS OF TREATMENT OF EMPYEMA.[1]

BY S. G. BONNEY, A.M., M.D., DENVER, COL.,
*Visiting Physician to St. Luke's Hospital.*

IT is generally recognized among the members of the medical profession, that the treatment of empyema in all cases should be that of surgical interference, and yet there exists a wide diversity of opinion as to the best methods of operative procedure. To afford a study of these various methods, as advocated by men of authority, to compare their relative advantages, and to note the peculiar conditions, under which each is applicable, or contraindicated, is the object of this paper.

A not unimportant preliminary consideration is the influence of the etiology upon the prognosis and treatment of the disease.

Modern investigations in bacteriology have demonstrated the development of intrathoracic pus-accumulations to be occasioned by the presence of pyogenic micro-organisms; that the bacterial agents vary in their nature and properties, and in the character of the changes induced by their presence in the pleural cavity.

The principal microbes involved are the pneumococcus, the streptococcus, the saprogenic organisms and the tubercle bacillus.

The pneumococcus is recognized as the most benign organism, and occurs almost exclusively in the empyemas of children, and in the effusions following pneumonia in adults. These cases are, therefore, the most amenable to treatment, responding frequently to the simplest measures.

The streptococcus, which is present in more than half the cases in adults, and occasionally in children, is associated with a decidedly destructive tendency, progressive in nature, and giving rise to a condition requiring more positive interference.

The saprogenic organisms produce foul-smelling accumulations of pus, and furnish the necessity of still more radical measures.

Save in extreme cases, a general tubercular infection never contraindicates an operation, from which satisfactory results are frequently obtained.

The value or the recognition of the precise micro-organism involved in any instance, would seem to be more theoretical than practical. Even the effort to approximate a diagnosis of the exact species, by the gross appearance of the pus, as suggested by Germain Sée, possesses little of clinical value. The important practical thought to be emphasized in this connection, is the recognition of the existence of several species of bacteria in the exudate, endowed with varying properties, and possessing marked differences in their virulence, that the most benign of these characterize the empyemas of children and the meta-pneumonic pleurisies of adults, and thereby furnish to the physician a justification for not resorting immediately, in all instances, to the more radical and mutilating measures of treatment. In a very considerable number of cases, however, absolute certainty of diagnosis established by an early exploratory puncture with an irreproachable needle, commands the observance of the following generally accepted therapeutic indications:

(1) Prompt and thorough evacuation of the pus.

(2) Prevention of a reaccumulation by means of free and continuous drainage and by the maintenance of asepsis.

(3) The final obliteration of the pus-secreting cavity through adequate provision for the expansion of the lung and the collapse of the chest-wall.

In but few instances in medical practice, can the responsibility in case of delay be greater. The recognition of the occasional absorption and encapsulation of the pus, renders the demand for operative interference no less imperative.

The choice of the precise method of surgical procedure involves a careful consideration of all factors having a possible bearing upon the prognosis, namely, the age of the patient, the history of the case, the recent or remote origin of the disease, the existence of complicating affections, the probable degree of atelectasis resulting from prolonged compression, the presence or absence of old adhesions, the general character of the pus, and anatomical conditions of the chest-wall, such as the flexibility of the ribs and the width of the interspaces.

A conscientious estimate of the relative significance of the preceding considerations should enable the physician to choose wisely from the following general methods of treatment: simple aspiration, aspiration with irrigation, permanent drainage through a canula or rubber tube, drainage through two openings, syphon drainage, pleurotomy, thoracotomy, and thoracoplasty.

*Simple Aspiration* provides merely for the fulfilment of the first indication, the removal of the pus, ignoring the necessity for further interference. The knowledge of its theoretical and clinical insufficiency, and the realization of the disastrous results of delaying the adoption of more rational means, combine to impose much responsibility upon him who makes use of this method, except under certain conditions and limitations.

Aspiration is applicable to the early treatment of the empyemas of children, in whom a much more favorable result may be expected than in adults, both on account of the comparative benignity of the bacterial organism involved and the greater absorptive power of the system.

That there exists in children a natural tendency toward recovery, following aspiration, by means of the greater faculty of absorption, has been remarked by Godlee, Garland, Cabot, Matas and Huber. A justification of their conclusions is found in the experience of Holt, who reports 23 cases cured by aspiration in early life, out of a total of 121.

Jacobi, Branthomm, Blake and many other clinicians have recorded a considerable number of successful aspirations in children.

The simple nature of operation, the avoidance of an anesthetic, and the slight degree of shock experienced, may be urged in its favor.

It is my opinion, however, that there are three distinct objections to the indiscriminate adoption of this method:

(1) The difficulty of the complete removal of the effusion. A protracted period of convalescence is thus established during the absorption of the residue, and in the event of its inspissation the patient is exposed to a possible focus for future tubercular infection.

(2) The opportunity offered for the formation of firm pleuritic adhesions, thus preventing the fullest

[1] Read before the Colorado State Medical Society in Denver, June 20, 1894.

expansion of the lung and rendering the conditions less favorable in the case of any subsequent operative measures.

(3) The frequent reaccumulation of the pus, thereby necessitating indefinite repetitions of the operation and meanwhile subjecting the child to the manifold dangers of delay.

Authorities differ as to the number of times it is advisable to repeat the aspiration. Successful cases are reported following an astonishing number of operations, the largest of which we have cognizance being 122. This reflects great credit upon the patient. It is the consensus of opinion that recourse should be had to the more radical measures not later than the second or third unsuccessful aspiration. I am impressed with the conviction, however, that it is unjustifiable to resort to this method more than once in children, and never in adults, unless to be followed immediately by more radical measures.

It is interesting to note in this connection the views of Ashhurst, contained in a paper recently read before the American Surgical Association at Washington. He states, "No operation is justifiable unless the presence of pus is certain, unless thorough treatment by medical agents, blisters, etc., has failed, or unless the symptoms, dyspnea, etc., are so urgent as to demand immediate relief."

He objects to the preliminary use of the aspirating needle for diagnostic purposes, for fear of thereby converting a serous effusion into a purulent one. Not until the development of urgent or dangerous symptoms, does he consider it justifiable to confirm the diagnosis or to involve the aid of surgical measures.

He remarks: "The first operation should consist of simple aspiration, with antiseptic precautions. This tells us whether we have made a mistaken diagnosis or not, and if so, prevents an open operation. There is no less danger from the use of the exploring or hypodermatic needle, and we should therefore always use the aspirator."

Again, he states: "When the fluid has partially reaccumulated, as it almost certainly will do if purulent, incision and drainage should be practised, which is much better than frequent tapping, which exhausts the patient without giving much, if any, permanent relief."

It is very apparent from the foregoing statements that his choice of simple aspiration is not based upon any faith in the adequacy of the measure to effect a cure, but is made with an aim to afford temporary relief from the urgent symptoms and at the same time to establish a diagnosis, admitting that the purulent nature of the effusion, particularly in adults, almost invariably demands subsequent operative measures.

In view of the facts, namely, that absolute certainty of diagnosis can be obtained only by means of an exploratory puncture, that this, under antiseptic precautions, presents but slight risks of converting a serous effusion into a purulent one, and that the delay of operative interference, until the advent of distressing symptoms, affords additional elements of danger, it is my strong preference to make use, strictly according to the principles of asepsis, of an early exploratory puncture, to be followed, if the effusion be purulent, by the prompt and thorough evacuation of the pus, in accordance with methods to be described. To accomplish the immediate removal of the effusion however, the temporary employment of simple aspiration, preliminary to more radical measures, is recommended by Senn [3] and others.

*Aspiration with irrigation*, although considerably in vogue for a time, is now virtually obsolete, and requires but brief mention to demonstrate its impracticability. Its employment has been largely limited to children. The injection of the various antiseptic solutions through an aspirating needle following the removal of the pus, was presumably designed to prevent the reaccumulation of the effusion by the action of the irrigating fluid upon the pus-secreting surface. A consideration, however, of the mechanical and therapeutical principles involved, coupled with the observations and experience of others in regard to the employment of this method, has led me to the following conclusions, namely, that irrigation performed in this manner is exceedingly incomplete, that it is usually superfluous, and that it is frequently attended with certain dangers. I refer to the possibility of shock, and the sudden onset of nervous disturbances to be mentioned more in detail later, as well as to the liability of poisonous absorption, on account of the extreme susceptibility of the child, and the difficulty of entirely withdrawing the fluid injected.

*Permanent Drainage through a Canula or Rubber Tube.*— The underlying principle in this as well as in several of the succeeding methods to be described, is based upon the observance of the second indication, the prevention of a reaccumulation, and consists in the adoption of measures to promote a free and continuous discharge. The degree of success attained, with a few rather insignificant exceptions, is directly commensurate with the sufficiency of the drainage. The general recognition of the manifest incompleteness of the discharge effected by the introduction into the chest of a trocar with canula or rubber tube, precludes anything here beyond a simple reference to the method.

*Drainage through Two Openings*, in different portions of the chest, has been revived by the endorsements of Michael and others, who have employed this method with frequent success. A single fenestrated rubber tube enters the pleural cavity through the upper anterior orifice, and emerges lower down from the posterior opening, the object being to induce freer drainage than by a single puncture and to secure more thorough irrigation. This plan has not received general commendation, however, on account of the imperfect evacuation of the cavity affected, the irritation of the pleura produced by the tube, and the additional opportunities offered for the development of sepsis.

*Syphon Drainage* has received much attention, and is worthy of more extended consideration. Various forms of apparatus based upon this principle have been devised, the best known and most popular of which are perhaps those of Potain and Bülan. Potain's method consists in passing a rubber tube about thirty cubic metres in length, and filled with an antiseptic solution, through the canula into the chest, until the end of the tube touches the wall of the cavity. The canula is then withdrawn over the tube, which remains firmly held in place by the contraction of the soft parts around it. A clamp is placed upon the tube near the opening in the chest, and another at the end, which is immersed in water. A branch tube, connecting with the portion entering the chest, is used to introduce within the cavity the various irrigating solu-

[3] Principles of Surgery.

tions, which are subsequently withdrawn by the syphon action in the lower tube.[3]

I cannot conceive, however, that any practical benefit is to be derived from the opportunity thus ingeniously offered for the washing out of the cavity, for in simple cases the irrigation is unnecessary, and in the more aggravated cases with odorous discharges, more radical measures are demanded.

Bülau uses a long single tube in like manner as the above, provided with clamps and connected with a glass tube, which passes through a rubber stopper to the bottom of a bottle filled with an antiseptic solution. If rendered necessary by the presence of clots in the tube, suction can be made by means of a glass mouthpiece inserted through the stopper.

Immerman, an ardent advocate of this method, states that "the patients are soon able to go about, carrying their bottle with them."[4] At the Ninth Congress of Internal Medicine, held in Vienna in 1890, he reported 49 cases directly cured by this method, out of a total of 57. Upon the same occasion Curschman reported 63 excellent results out of 75 cases.[5] Eberle has since recorded generally satisfactory results from an experience of 19 cases.

The aim to be obtained in all methods making use of this principle has been to secure the proper continuous drainage without permitting the entrance of air to the pleural cavity. By this means it was designed to produce the fullest expansion of the lung and favor the obliteration of the pus-cavity by restoring the parts as fully and as quickly as possible to their normal conditions. The application of this theory, however, has been demonstrated by experience to be exceedingly disappointing and the method does not, therefore, meet with general favorable acceptance. Its chief disadvantages are the occasional entrance of air around the tube, destroying at once the syphon action; the necessarily slow and imperfect drainage accomplished on account of the weak aspirating force employed; and the liability of the occlusion of the tube by large masses of coagula.

Even Immerman, the most enthusiastic advocate of the measure, admits that "this method gives good results only in recent empyemas, in which the pus is not too thick."

Matas concludes that "the syphon method may be adopted only in recent cases, in which the expansile power of the lung is not lost, and in which a preliminary aspiration reveals the presence of a thin, liquid, inodorous pus, free from large flocculi of fibrinous masses."[6]

I would suggest, however, that it is well nigh impossible to demonstrate the presence of those fibrinous masses in the exudate by the preliminary use of the aspirating needle, and also that it is in cases of precisely this class with organic *débris* or coagula, as well as in the more simple conditions, that are exhibited the most satisfactory results of the method to be next considered.

*Pleurotomy* consists in the free opening of the pleural cavity, and provides for the immediate and thorough evacuation of its contents. A complete exit is offered to the clots and organic *débris*, and perfect facilities for a continuous discharge.

It is my opinion, that this method is indicated as an initial procedure in the treatment of all cases of empyema, excluding only the use of the single aspiration in children previously alluded to. It is admitted that pleurotomy alone, will not always suffice for the later treatment of old protracted cases, owing to the existence of certain complicating conditions.

Were this method, however, more frequently employed in the early stages of the disease, before an opportunity be given for the development of unfavorable conditions, the necessity for recourse to the severer operative procedures would result far less frequently.

It was Küster's wise motto, "Never allow an empyema to grow old."

The opening by incision into the pleural cavity may be accompanied in some instances, if necessary, by the resection of a small portion of a single rib. This should be distinguished from the multiple rib-resection, which of itself, constitutes a separate method, is subject to different principles, and indicated by other conditions. The prime object of the resection of a single rib is to enlarge the opening.

This is indicated when the ribs are too near together to otherwise allow a sufficient orifice for the escape of the pus. An additional indication is the presence of a putrid accumulation, as revealed by the aspirating needle, in which condition the provision for the discharge must be perfect.

Jacobson[7] remarks, "It cannot be too strongly insisted upon that fetor calls for a freer opening, not for washing out."

While there can be no doubt of the justification of resorting to resection in all cases associated with an offensive discharge, there may occasionally be room for discussion as to its universal expediency under other circumstances; thus in children, although the rib-spaces are narrow, I would seriously question the wisdom of invariably performing resection, although such has been the sanction of high authority. I should not consider the operation indicated in such cases until it is ascertained that a moderate-sized, soft-rubber tube will be compressed between the ribs to such an extent as to seriously interfere with drainage.

Garland states that, "when an inch of rib is removed, the cut ends immediately drop together, so that no more space is left than previously existed, and a broken rib is added to the other casualties of the case."[8]

The performance of pleurotomy, with or without resection of a rib, should be accompanied by an observance of strict antiseptic precautions, the skin, the hands of the operator and the instruments demanding most scrupulous attention. Upon the antiseptic details of the operation and of the subsequent dressings, will depend to a great extent the degree of success attained.

An important consideration is the choice of an anesthetic. Although the condition of the patient is never too desperate or extreme to preclude the question of operation, or even to justify delay, it may in some instances positively contraindicate the administration of an anesthetic.

In adults a sufficiently local anesthetic effect may frequently be secured by the employment of cocaine hypodermically, or by a spray of ether or rhigolene. If the patient is excessively nervous, however, a general anesthetic is desirable, in the absence of any specially contraindicating condition.

[3] Donaldson: Pepper's System of Medicine, vol. iii, page 555.
[4] Annual of Universal Medical Sciences, 1888, vol. iii.
[5] Boston Medical and Surgical Journal, May 15, 1890.
[6] Matas: Hare's System of Practical Therapeutics, vol. ii, page 665.
[7] Surgical Operations, page 518.
[8] Treatment of Pleurisy and Pneumonia, page 44.

In children, profound general anesthesia is usually necessary. Chloroform should be preferred to ether, if the condition of the patient is such as to justify its administration; it is more agreeable, more rapid in its action, possesses less danger of dyspnea from abundant secretion of mucus, is less irritating to the bronchial mucous membrane, and is not associated with a period of excitement or violent intoxication.

The coughing and strangling, incident to this stage of ether anesthesia, complicating the condition of distended pleura, and crowded or displaced organs, furnishes a source of danger too obvious to be ignored, the rupture of a bronchial tube. Two fatal accidents of this nature have been recorded by Holt. Upon the other hand, the dangers are apparent of the full anesthetic effect of chloroform upon a heart whose action is already embarrassed by compression and displacement. It is manifestly true that while a large number of cases satisfactorily undergo the anesthesia, its general employment is nevertheless attended with assured possibilities of exceedingly disastrous results.

The site of the operation is a subject of much interest, involving a consideration of certain anatomical and mechanical conditions. It is frequently urged that the incision be made in the more dependent and posterior portion of the chest, in order to secure as perfect drainage as possible. The fallacy of this is rendered clear by the appreciation of the fact that the pus does not escape *solely* in accordance with the law of gravity, but owing as well to the constant action of the intra-thoracic forces, the expansion of the lung and the pushing of the diaphragm impelling it in the direction of the least resistance. The positive objections to opening the lower portion of the chest are: the danger of wounding the diaphragm, which rises higher in children than in adults, the irritation of the diaphragm produced by the incessant rubbing of the end of the tube, and the possible occlusion of the orifice, subsequent to partial evacuation, by the ascent of the diaphragm which returns to its normal position more readily than the lung.

In view of the preceding, and in the absence of specially contraindicating signs, I should prefer the fifth or sixth space in the mid or posterior axillary line.

In this region the chest wall is thinner, the intercostal spaces are wider and the ribs are more fixed, offering less opportunity for their approximation.

The mode of performing the operation will necessarily vary somewhat according to the nature of the anesthesia and the thickness of the chest-wall. The incision, about two inches in length, should be made as nearly as possible in the centre of the interspace, parallel with the ribs.

A single plunge of the knife is hardly advisable. The use of the grooved needle devised by Cabot, which is inserted into the cavity and serves as a guide to the knife, affords a rapid method of opening the chest, particularly adapted to those cases in which local anesthesia is used. I should generally prefer, however, the most careful method of incising quickly through skin, subcutaneous and muscular tissues, forcing an entrance into the pleural cavity by means of a sharp-pointed instrument, and dilating the opening by an aseptic finger, the flow being occasionally interrupted in order to secure the gradual escape of the pus.

Drainage may be effected by the insertion of two soft-rubber tubes, of as large size as may be admitted between the ribs. These should be only of sufficient length to project slightly within the cavity.

Irritation of the pleura in the event of the subsequent expansion of the lung, may be avoided by withdrawing the tubes a little, and cutting the ends. Care should be taken to prevent the tubes from slipping within the chest. This mishap may be avoided by piercing the tubes with one or two large safety-pins, separated from the skin by a small plate of rubber or oil-silk. The use of an external continuous shield, designed to prevent the inward escape of the tube, necessitates the complete withdrawal and subsequent replacement of the tube, in order to effect its shortening.

*Irrigation of the Pleural Cavity* has attained exceeding popularity, and is being used extensively under the sanction of eminent authority, either as a simple initial procedure following evacuation, or as a regular part of daily routine.

Gaston remarks: "It is evident from the numerous reports of cases in which medicated irrigation has been resorted to during the past year, that it is growing in favor with the medical profession in different parts of the world."[9]

It is my conclusion, however, drawn from a comparative review of the experience and observations of many, that this measure, unless subject to certain limiting conditions, merits much criticism. It should never be recommended except in cases exhibiting much fetor, which exists notwithstanding an abundant provision for drainage. Save under such conditions, the injection of various sterilized and antiseptic solutions into the cavity should be discountenanced as superfluous, and positively contraindicated as possessing certain elements of danger.

Owing to the admirable drainage usually incident to pleurotomy, the liability of toxic absorption from the use of the more powerful antiseptics is indeed slight, although disastrous results have occasionally followed their use.

A much more serious development from the irrigation is the occurrence of shock, which is sometimes fatal, and the sudden onset of severe nervous manifestations resulting from irritation of the pleura.

Sears has called the attention of the profession in this country to the experience of Jeanselme in a series of forty-five cases of this nature.[10] A great variety of disturbances of nervous origin was noted. He mentions the occurrence of syncope, convulsions, hysterical and epileptic attacks, monoplegia and hemiplegia, delirium, vaso-motor or trophic changes, strabismus, disturbances of vision and inequality of the pupils, the latter being a premonitory symptom. These manifestations took place regardless of the nature of the fluid injected and rendered a necessarily grave prognosis, as over half the cases proved fatal.

The prevention of shock during irrigation, may be assisted somewhat by proper attention to the temperature of the fluid and to the manner in which it is injected. Extremes of heat or cold are to be avoided, a temperature of about 100° being the most desirable. Only the slightest degree of force should be employed in the introduction of the solution, preference being given to the gentle steady flow from a fountain-syringe or syphon.

From among the numerous antiseptic fluids recom-

[9] Annual of Universal Medical Science, 1893, vol. iii.
[10] Boston Medical and Surgical Journal, August 31, 1893.

mended for injection, my choice would be either solutions of boric or salicylic acids in sterilized water, or a dilute solution of peroxide of hydrogen, to the exclusion of carbolic acid, corrosive sublimate or iodoform.

The correct application of the dressings after pleurotomy requires the observance of strict antiseptic precautions. The demand for the most scrupulous care in this respect remains continuously and rigidly in force till the final closure of the wound.

An adherence to these principles during each subsequent dressing should prevent the pus-cavity from assuming the condition of sepsis.

An appropriate dressing may also be of material assistance in favoring the distention of the lung. It is very desirable that the lung be made to expand as quickly as possible and to the fullest extent.

Should the lung become bound down by the formation of pleuritic adhesions, when in a state of only partial dilatation, its subsequent expansion is rendered extremely difficult if not impossible.

By reviewing the mechanical principles involved in the process of lung-expansion, it becomes apparent that one function of the dressing should be to provide for the ready passage of the air from the pleural cavity, and to obstruct as far as possible its re-entrance.

The possible valve-like action of the dressing has been ably discussed by Dr. Cabot[11] who recommends the employment, external to a thick layer of antiseptic gauze, of mackintosh, sufficient in size to project upon the skin in every direction, to which it is held closely applied by the elastic pressure of the outer dressings, consisting of more gauze, carbolated cotton and a flannel bandage.

He explains: "When air is forcibly driven out of the chest by a cough, or other effort, it lifts the edge of the rubber and escapes, but as the elastic outside dressings immediately press the mackintosh again to the side, the air which could lift it from within cannot get beneath it from without. It acts, in short, as a valve, and with the aid of the movements of the chest, pumps the fluid and air from the pleural cavity. Under this form of dressing, if the lung is not already tied up, so that it cannot expand, we may look for its rapid dilatation and the quick closure of the cavity."

While several other theories have been presented to explain the expansion of the lung after entrance of air to the pleural cavity, their elucidation involves a consideration of the principles of dynamics, which does not fall within the scope of this paper.

It is sufficient for my purpose to show that at least one element among the several that may combine to promote rapid lung-expansion is the application of an appropriate dressing. The use of the mackintosh, as described, commends itself highly in theory. It may be properly questioned, however, if a generous occlusive aseptic dressing may not answer quite as well.

In the after-treatment, systematic "lung gymnastics" may be of considerable service in aiding the distention of the previously compressed lung.

Osler[12] recommends the use of the James method, which consists in the transfer of water from one large Wolff bottle to another by means of the expiratory effort of the patient.

It occasionally happens, however, owing either to the presence of firm adhesions or to the result of an unduly long period of compression, that the lung does not expand sufficiently to fill the chest. In this condition, the further obliteration of the cavity may be aided to a greater or less extent by the retraction of the chest-wall. The realization of this is particularly simple in children, in whom the flexibility of the ribs is well known. In later life, however, when the parts have become more stiffened and rigid, the shrinking in of the chest-wall and the consequent approximation of the pleural surfaces of the cavity, can only be affected by radical surgical measures.

It is under these conditions that *Thoracotomy*, the multiple resection of ribs, is indicated. This method, with which the name of Estländer is frequently associated, consists in the removal of portions of several ribs with an aim to produce a collapse of the wall of the chest. While attempting no detailed description of the technique of the operation, a few points of practical interest may be considered.

The rapidity with which the operation may be performed by expert surgeons, renders possible the use of simple local anesthesia, as almost invariably employed by Abbe and Beck of New York. The latter states,[13] "Resection of the rib itself is by no means painful, and the whole operation can be done in two or three minutes." He also remarks, "I have had but little trouble from the patient or his friends, regarding the performance of the operation without an anesthetic. It has come chiefly from the objections of the attending physician."

Notwithstanding this, it would seem that the operation as usually performed, would suggest the advisability of the employment of a general anesthetic unless specially contraindicated.

The determination of the precise number of ribs to be resected, as well as the length of each section, should be made with reference to the depth and extent of the cavity. Should the cavity be covered by several ribs, resection should be made of a variable portion of each overlying rib, the largest section removed corresponding with the point of greatest depth of the cavity. The operation may include the resection of from two to eight ribs according to the conditions present, the portions of bone removed from each varying from one to eight inches in length.

While it is frequently the custom to make use of several horizontal incisions, parallel with the ribs, a preferable method is the employment of a single subaxillary vertical incision extending from the upper to the lower rib involved.

The ribs having been exposed and stripped of the periosteum, resection is readily accomplished by means of a bone-forceps.

The pleura may be freely opened to provide for the removal of fibrinous masses and *débris*, which are scraped away, if necessary, with a blunt spoon. In some cases the condition of the cavity renders advisable a systematic curetting, coupled with an antiseptic irrigation and followed by a light packing with sterilized gauze.

A question of some importance is the length of time that should be allowed to elapse after an unsuccessful pleurotomy before recourse be had to this method.

Estländer advises against an early operation in order that sufficient opportunity be given the pleural surfaces to become transformed into "thick, firm, connective tissue."

[11] Keating's Cyclopedia of the Diseases of Children, vol. ii.
[12] Practice of Medicine, page 871.
[13] Post-Graduate, February, 1894.

Berger has shown, however, that the most satisfactory results have attended those cases in which an early operation was adopted.

In accordance with this view, Matas recommends that thoracotomy be delayed not longer than three or four months after pleurotomy in the absence of signs of healing. It is evident that the operation should be performed, provided the general condition of the patient is favorable, as soon as the natural forces applied to produce an obliteration of the cavity have become exhausted.

Complete *Thoracoplasty* is a truly heroic method of treatment, advocated by Schede and Tillmans. As this provides for the removal of the entire chest-wall, with the exception of a skin-flap only, its general application is contraindicated, and its justification in special cases very exceptional.

My conclusions may be briefly summarized as follows:

Absolute certainty of diagnosis by an exploratory puncture with an aseptic needle; use of a single aspiration in children, followed in the event of a reaccumulation, by open incision and drainage; no justification for aspiration in adults, except as a mere preliminary to pleurotomy; the performance of pleurotomy in all recent cases, excluding only the employment of aspiration as an initial procedure in children; avoidance of general anesthesia when practicable; a single opening for drainage, not located in the most dependent portion of the chest; double drainage-tubes to extend but slightly within the cavity; the resection of a small portion of a single rib in case of a fetid discharge, or of marked approximation of the ribs; no irrigation of the cavity, unless in the presence of considerable fetor, the irrigating solutions to be introduced slowly, of proper temperature, and non-poisonous in nature; observance of scrupulous asepsis during each dressing from the beginning to the end of the case; adoption of multiple rib-resection in the event of an unduly prolonged continuance of the pus-cavity; number of ribs resected and size of section to correspond with the depth and extent of the cavity; exceedingly rare justification for the employment of complete thoracoplasty.

## REPORT OF CASES OF CASTRATION FOR THE RELIEF OF PROSTATIC HYPERTROPHY, WITH REMARKS.

BY FRANCIS S. WATSON, M.D., BOSTON.

SINCE Prof. J. William White, of Philadelphia, experimented on dogs, as to the effect of castration on the prostate, in December, 1892, and reported June 1, 1893, as the result, that rapid atrophy of the prostate followed the operation, and upon these results, and upon the well-known effect of oöphorectomy on certain forms of uterine fibroids, based the suggestion that atrophy of the senile hypertrophy of the prostate might reasonably be expected to follow castration, and urged that the experiment be tried, his suggestion has been carried out; first by Ramm of Christiania, then came reports of cases from Haynes of Los Angeles, Smith of St. Augustine, White of Philadelphia, Moullin of London, and of others from Dresden, etc. During the last year experience has been steadily increasing; and now, so far as I know, the number of reported cases is 18. The uniformity of the results in these cases is so striking that while it is as yet too early to form a final judgment as to the value of the operation, it is at least very suggestive and of great interest, and if their promise should be fulfilled, old age will have been robbed of one of its most distressing infirmities.

In regarding this claim to practically uniform success of a new surgical step, our attitude should be, as in other similar cases, critical, rather than credulous or sceptical. One thing that is noticeable is, that the record of reported cases does not contain a single failure, and that the reports do not come from one individual or one locality, but from widely separated places, such as Christiania, California, Florida, Philadelphia, London, Dresden, etc.; also that the reporters are all surgeons of high standing and are not men who are likely to record hasty judgments. I must say that when I read the report of Dr. Smith's case last year, in which he described the condition of the patient, an old man, who had had for a considerable time serious symptoms due to urinary obstruction from a typical senile hypertrophy of the prostate, and who at the time of operation had cystitis, sepsis, and beginning uremia, and was in a very dangerous condition, and in whom very speedy relief of most painful symptoms and prompt subsidence of the grave conditions (sepsis, etc.) followed the operation, and who fifteen weeks later had gained forty-five pounds in weight, urinated freely and spontaneously, and had no urinary symptoms whatever, I was strongly inclined to be sceptical with regard to this almost magical result.

The first case in which I had the opportunity to watch personally the effects of the operation was that of a patient operated on by Dr. Gavin, who has kindly offered me the opportunity of showing him here to-night, and whom I am going to ask to give you his own impression of what the operation did or did not do for his relief. [The report of this case is reserved for publication by Dr. Gavin in the Boston City Hospital Reports. I will only say that the result was brilliantly successful.]

Since Dr. Gavin's case I have operated on three patients; the opportunity to do so I owe to the kindness of my colleague, Dr. H. L. Burrell. The observations of these cases were confirmed by Drs. Thorndike, Dwight and others.

CASE I. The first patient was fifty-eight years old, he had suffered from symptoms of urinary obstruction for several years. One year ago he had retention of urine, and again three months ago. Since then he has used the catheter more or less regularly. Previous to doing so, he was threatened with attacks of retention from time to time. There was gradually increasing frequency of urination, and pain attending the act. After beginning the use of the catheter these symptoms were not relieved, but, on the contrary, became gradually worse, until during the three weeks preceding his entrance to the hospital he became an example of the most suffering form of the malady, having a painful desire to urinate every fifteen minutes day and night. This state was, I think, in part due to friction of the deep urethra by his catheter which had become roughened; but it is certain that it was not wholly referable to this cause, since well-marked symptoms of urinary obstruction had been present for several years before he had ever used a catheter, and had already reached a distressing stage.

[1] Read before the Boston Society for Medical Improvement, February 4, 1895, but now printed with changes and addenda.

When the patient entered the hospital he was unable to pass the catheter, and had retention. Between the times of passing the instrument he had been voiding a few drops of urine every fifteen minutes or so, with much straining and vesical tenesmus, and was beginning to show constitutional exhaustion from the effects of sleeplessness and pain. The urine contained a considerable quantity of blood and mucus, but was not foul, nor did it show evidence of disease of the kidneys. The patient was kept in bed and regularly catheterized five times daily with a proper instrument, and the bladder was washed with a hot solution of boracic acid at the same time. During the five days at the hospital which preceded the operation, he was unable to void spontaneously more than an ounce or two of urine in the twenty-four hours, and that only a few drops at a time, and with great pain. No benefit followed the palliative treatment, and castration was done on the sixth day. [Continuous drainage of the bladder by a catheter in the urethra was not tried before operating.]

*Operation*, January 3, 1895. The condition of the prostate, as noted by rectal examination, was as follows: The upper border of the prostate could not be reached by the finger. Both lateral lobes were markedly hypertrophied, and were both, the right more than the left, exceptionally dense and hard; this was especially marked in the lower half of the gland. The surface of the right lobe was somewhat uneven; and in the course of the vas deferens there was a hard, round body of the size of a pea, which was movable. The prostate did not project very prominently into the rectum, nor was it tender to the touch. It was unquestionably a typical example of senile hypertrophy of the gland, and had nothing whatever of an inflammatory character. Castration was performed through two incisions, one over each testicle, the operation being somewhat prolonged by the presence, on one side, of an encysted hydrocele of the cord, which was dissected out carefully in order to preserve it intact as a specimen. There was no constitutional disturbance whatever after the operation, and the wounds united by first intention.

All treatment, including the use of the catheter, was omitted immediately after the operation, in order not to confuse the result. Previous to the operation retention had followed immediately if the catheter was omitted. In the first twenty-four hours, although the bladder filled up considerably, it did not become overdistended, and the patient during this time voided at each urination more than he had done previously. There was no change in the frequent or painful desire to urinate; and at the end of thirty-six hours, however, he had an interval of one hour and a half without either pain or desire to urinate, and during the second night after the operation he slept undisturbed for two hours. On the sixth day he passed from two to four ounces at each urination spontaneously; there began to be much less pain on urination. Since then he has passed from four to six ounces at each urination. On the tenth day he was entirely free from pain, and the urine contained less pus and mucus. The patient slept two hours at a time at night, and the intervals between urination were from an hour to an hour and a half in the daytime; the residual urine was but three ounces.

Three weeks from the time of operation there was but an ounce and a half of residual urine, and the urine was almost free from pus; the patient's general condition was excellent. At this time a distinct diminution in the size and hardness of the prostate was for the first time noticeable. Within the next nine days the atrophy advanced much more rapidly; the left lobe then was smaller than normal, was flat and soft, and the right was but a little larger than normal; the gland throughout was much softer and the intervals of urination had lengthened to two and a half hours in the day and to three at night.

At this time Dr. H. W. Cushing examined the patient by rectum for the first time, and the statement I have just given of the contour and condition of the prostate is that which he made to me after he had done so. The patient was again examined two months from the time of operation. The prostate was distinctly smaller than normal. There was but one ounce of perfectly clear residual urine. The patient slept five hours at a time undisturbed. In the daytime the calls to urinate are but once in three or four hours. The patient states that he feels ten years younger, and that he can work at his trade (that of a stone-cutter) as hard as he ever could in his life. This case is another example of the complete success of the operation.

CASE II. This patient, sixty-nine years old, I operated upon January 21st, removing both testicles through a single median incision, which was suggested to me by one of my students. This incision seems to me to make a neater and quicker operation than the double one usually practised.

There was but very moderate hypertrophy of the lateral lobes; the catheter passed nine and a quarter inches before entering the bladder. This patient had been using the catheter regularly for a year previous to the operation, and had had symptoms of urinary obstruction for three years. The flow of urine as it passed through the catheter was very feeble. For the past six months he had been suffering a good deal of pain, which could not be relieved by palliative treatment; the catheter could not be omitted without producing retention; the patient could pass but a few drops at a time, spontaneously. The obstruction in this case was due to hypertrophy of the median portion of the prostate. The urine contained a considerable amount of pus, but was acid, of good specific gravity, and there was no evidence of renal disease. The patient was losing flesh, strength and appetite.

After the operation the catheter could not be omitted, the wound did perfectly well, and the patient made a rapid recovery from the operation. There has been less pain, but no other improvement in the urinary symptoms, up to the present time, forty-four days after the operation. There is no perceptible change in the size of the prostate, the character of the urine remains the same, the general condition of the patient is unchanged; so that, *so far*, the second case is a failure. It is too soon, however, to judge of the final result.

CASE III. Patient, aged seventy, entered the hospital with retention of urine. He had had symptoms of urinary obstruction for several years, and an overflow bladder for several months. He was beginning to be uremic, and his condition was critical. Operation was postponed for several days, during which time he improved somewhat.

*Operation*, February 21st. The patient had double inguinal hernia of long standing. The gut was easily reducible, but the sacs were very thick and so closely

adherent to the testes and cords that it was impossible to separate them. The sacs were therefore divided and tied, the gut being retained within the rings by firm bandages and pads. The patient was slightly delirious before the operation, and continued to be so afterward. The prostate in this case was much enlarged; the sulcus between the lateral lobes could not be reached by the tip of a very long finger in the rectum; the lateral lobes projected prominently into the rectum. There was constant and painful desire to urinate, and at times violent bladder tenesmus, the urine being expelled involuntarily, a few drops at a time, with much force; there was also frequent dribbling of urine in spite of the regular use of the catheter; palliative treatment had failed to give any relief.

During the night following the operation, the patient tore off his bandages, got out of bed, and in a violent fit of coughing forced down the hernias, distending the scrotum, and putting the wounds on the stretch. On the following day when this condition was first discovered, it was found to be impossible to reduce the hernias. The patient's uremic symptoms became more marked during the next few days; and on the ninth day he died. At the time of operation the testes were examined for spermatozoa, but none were found. There was decided relief of bladder tenesmus and pain from the third day.

*Autopsy.*— The autopsy showed very marked enlargement of the lateral lobes of the prostate, and a small median enlargement. The hypertrophy was in the form of distinct fibro-adenomatous tumors, each lateral lobe containing within a much thickened capsule, a growth about the size of a large horse-chestnut. So far as could be judged, no atrophy of the prostate had occurred. The vesiculæ seminales contained no spermatozoa. The bladder was the seat of chronic cystitis. The ureters were much dilated, as were also the pelves of the kidneys, and there was an extensive pyelonephritis of both kidneys.

In closing this short note upon this new and most interesting subject, let me say that it is, of course, of great importance for the future of the operation that these earlier cases should be carefully discriminated and thoroughly examined before and after operation by two or more competent observers. Special care should be taken not to confuse cases of inflammatory, tuberculous or cancerous enlargement with those of true senile hypertrophy, and to select for operation patients in whom the symptoms are due to this cause alone and not to other complicating conditions.

It will be interesting to see, as the number of operations increases, in which special classes of cases it is to prove successful and in which it is to fail; whether, for example, it will succeed better when there are distinct fibroid tumors imbedded in the substance of the prostate — a condition, that is, resembling that of an intra-mural uterine fibroid — than when there is a more diffuse form of growth; whether the presence of spermatozoa in the testes, indicating functional activity, or their absence, will affect the result; whether median hypertrophy will atrophy as readily as lateral hypertrophy, etc. And, finally, it will be important to note whether or not there will result later any consequences injurious to the patient that can be referred to castration *per se*.

The length of time after operation at which atrophy begins varies very much in different cases. The relief to the distressing symptoms, however, is often very rapid, sometimes beginning within twenty-four hours; this is presumably due to local circulatory changes.

The question of whether unilateral atrophy of a bilaterally enlarged prostate occurs after the removal of one testis, and if so, whether that operation may not so modify in some cases the form of the gland in such a way as to allow of the free passage of urine, has been recently raised — there is evidence both for and against the view that this may occur. The author has seen the destruction of one testis by an acute suppurative process, followed by atrophy of the lobe of an hypertrophied prostate, on the same side, and the power of partial voluntary urination restored, in one case.

## CASES OF RETRODEVIATION OF THE PREGNANT UTERUS, INCLUDING A CASE OF PREGNANCY IN AN INCARCERATED CORNU AND A CASE COMPLICATED BY AN OVARIAN TUMOR; WITH REMARKS.[1]

BY W. L. BURRAGE, M.D.

I PRESENT brief histories of six cases of retroversion of the pregnant uterus and fuller histories of two other cases that have come under my observation during the last five years, eight in all. The diagnosis of pregnancy was well established in every case.

The first five cases were treated as out-patients, and their subsequent histories are necessarily incomplete.

There were five cases (I to V) of uteri about two months gone and in the second or third degree of retroversion; four were treated by replacement by means of bimanual manipulation, or by packing and a pessary. There was one case (V) of an incarcerated uterus three and a half months pregnant, that, having been replaced, carried the fetus to term. Two years later the woman appeared with the uterus in the third degree of retroversion and two months pregnant. Of the two cases reported in full, Case VII was pregnancy of three months' developing in the incarcerated right cornu of the retroflexed uterus. In this and in the following case it was necessary to give ether to make clear the diagnosis and to replace the uterus. Case VIII was a retroflexed and incarcerated uterus four and a half months pregnant, with prolapse of the cervix at the vulva, and an ovarian cyst the size of a cocoanut. It was treated by bimanual replacement of the uterus and by ovariotomy, with the result of an uneventful convalescence and a living child at term.

CASE I. S. B., twenty-seven, married eighteen months, sterile. First seen June 1, 1891. Complained of vomiting every morning, and weakness for two months. Last catamenia March 20th. Diagnosis: retroversion, third degree; pregnancy, two months. The uterus was replaced by means of traction on the cervix with a tenaculum, and pressure on the fundus with a finger in the rectum. June 4th, a Thomas soft-rubber retroversion pessary was fitted. July 16th, the uterus was high up in the pelvis, and the pessary was removed.

CASE II. L. C., twenty-five, married eight months, sterile. First seen May 19, 1892. Last catamenia May 5th. Diagnosis: retroversion, uterus somewhat enlarged. She was packed for fourteen treatments, twice a week. Vomiting of pregnancy began June 1st, and continued. July 18th, there was no question as

[1] Read before the Obstetrical Society of Boston, Jan. 12, 1895.

to diagnosis of pregnancy. August 11th, the vomiting had ceased, and the uterus was so high in the pelvis that no support was necessary.

Case III. A. O., thirty-two, married twelve years; one child, two and a half years old; no abortions. First seen March 12, 1894. Catamenia irregular for the last two months; constant pain in the right inguinal region for the last week. Catamenia always regular until two months ago, and since then has flowed one day about every week. Diagnosis; retroversion, third degree; pregnancy, two months. The fundus uteri was replaced bimanually. March 19th, the uterus was again replaced, with the patient in the knee-chest position, and a Thomas soft-rubber retroversion pessary fitted. Patient not seen again.

Case IV. A. E., twenty-one, single. First seen March 15, 1894. No catamenia for two months; morning sickness and pain in the breasts. All the signs of pregnancy. Diagnosis: retroversion, third degree; pregnancy, two months. Not treated.

Case V. A. C., thirty-eight, married fourteen years; six children, the youngest four; two abortions. First seen May 23, 1890. Last catamenia, February 8th. Complained of difficult micturition and pain in the small of the back for two months. Diagnosis: retroversion and incarceration of uterus; three and a half months pregnant; lacerated cervix; cystocele and rectocele. The cervix was high up under the pubic arch, and the fundus jammed in the hollow of the sacrum. With the patient in the knee-chest position the uterus was replaced. April 28, 1891, she reported that she had carried the child to term, and that it had been removed dead (by version probably). The uterus was in good position.

March 17, 1893, she again came under observation. The uterus was then in the third degree of retroversion and two months pregnant. It was treated by replacement and packing for six treatments, and then it remained in place without artificial support.

Case VI. K. McC., twenty-eight, married seven weeks, sterile. First seen Dec. 6, 1894. Backache for a year, associated with dyspepsia and constipation. Leucorrhœa. Catamenia regular, of four to five days' duration, using six to eight napkins but accompanied by increased backache. Last catamenia October 26, 1894. In November flowed slightly one day. Backache very bad since marriage, also almost constant nausea and indigestion. Pains in stomach and breasts. Unable to work. Diagnosis: retroversion, axis of vagina; pelvic inflammation; cervix long and soft; uterus large, immovable and tender; breasts, suspicions of pregnancy.

She was treated by light packing with ichthyol and glycerine cotton for five treatments. Pain somewhat relieved by bromide. December 31st, the uterus being free from adhesions and having increased in size to that of two months' pregnancy, it was replaced by traction on the cervix with a tenaculum and lifting the fundus out of the hollow of the sacrum with a finger in the rectum. A little bimanual manipulation then restored it to a normal position. Cervix very soft. Discoloration of vagina. No question as to diagnosis. The uterus being so large, it was thought that there was little danger of its becoming reincarcerated and no pessary or packing was used.

January 3d, she returned and the uterus was again wedged in the pelvis in retroversion. It was again replaced, the patient being in the knee-chest position, and an Albert Smith retroflexion pessary placed. She is now wearing the pessary with comfort, and the uterus is in good position. She has been partially relieved of her nausea.

Case VII. M. X., twenty-six, wife of a physician, married three months. First seen November 23, 1893. Last catamenia September 8th. Catamenia usually regular and painless. Suffered with severe pain in left ovarian region on September 29th, after getting her feet wet. Nausea and vomiting began the latter part of October, and had persisted with great severity up to the time when I saw her. Early in November, after she had been vomiting persistently for ten days and was losing flesh and strength very rapidly, her husband introduced a bougie four inches into the uterus, and left it there over night. Next day he put in another. As a result, there was some flowing (one napkin) for a day, and relief from the symptoms for a week. A week before my visit the vomiting began again with renewed force. She could keep nothing on her stomach, vomited froth and bile every few moments, had lost fifteen pounds in weight and was becoming very weak.

Dr. X. made use of a large number of drugs without much avail. Morphine and bromide controlled the vomiting for a short time, but were poorly tolerated. November 21st, he dilated the cervix with a Palmer dilator to a one-inch spread of the blades. Since then there had been slight flowing, but no relief of the symptoms. The urine was negative. Temperature 100°.

When I saw Mrs. X., two days later in consultation, I found a tall, well-developed, dark-complexioned woman of a neurotic type. The abdominal walls were reasonably lax, so that the bimanual examination was as satisfactory as is usual in nulliparæ who are not too fat. There was some mucus and blood in the vagina. The uterus, which was enlarged to the size of three months' pregnancy, was retroflexed in the second degree and immovable. In the cul-de-sac to the right there was a mass the size of a hen's egg, that I took to be a cystic right ovary, or an extra-uterine pregnancy. The cervix appeared to be very long and the os was patulous.

It seemed best to me to give an anesthetic, in order to make a more thorough examination. Ether was given accordingly. With the aid of the anesthetic I was able to determine that the mass in the cul-de-sac to the right was not the right ovary, nor the products of extra-uterine fetation, but the enlarged right horn of the uterus that had somehow become incarcerated in the bottom of the pelvis. After considerable vigorous bimanual manipulation, I succeeded in rocking the large horn by the promontory of the sacrum, and put the uterus into its proper position. Then it was possible to map out the asymmetrical uterus and also both ovaries normally placed and of normal size. Diagnosis: pregnancy at three months in cornu; retroflexion and incarceration. A half-grain suppository of morphine was put in the rectum, and the patient put to bed.

The relief from symptoms was marked. With the exception of a slight relapse to vomiting on November 30th and December 1st, pregnancy was from this time uncomplicated; and Mrs. X. was delivered of a living girl baby, weighing five and three-quarters pounds, on April 28, 1894. I saw Mrs. X. again August 31, 1894. The uterus was then symmetrical, in good

position, and of normal size. Left ovary small. No evidence of rudimentary uterine horn.

CASE VIII. D. H., twenty-six, married two years; one child, thirteen months; no abortions. First seen October 25, 1893. Had an attack of flowing in August, 1892, two weeks after her baby was born and had not flowed since until she had a normal menstruation of five days, May 10, 1893. Was in labor five days; ether and forceps used; baby weighed ten pounds and a quarter; in bed three weeks after labor; nursed child. She noticed prolapse of the parts at the vulva as soon as she got up, and the condition persisted in spite of treatment by her doctor with packing and a ring pessary.

Early in September she thought she might be pregnant, being unable to eat her usual articles of diet, and having cravings as at her previous pregnancy. Accordingly she weaned her child. She noticed at this time that the womb came outside the body; and she suffered with dysuria and was unable to sit or walk with comfort. She also suffered from constipation and from pain above the pubes, that had been increasing in severity ever since. She complained chiefly of this pain when I saw her at the Carney Hospital, October 25, 1893. I found the cervix uteri enormously elongated, with as much as an inch and a half projecting from the vulva; deep laceration of the perineum; pelvis filled with a semi-solid tumor, apparently the retroflexed uterus about four and a half months pregnant. Above and on the right, lying on the pelvic brim, was a tumor of indefinite outline and the size of a cocoanut.

By forcible bimanual manipulation I was able to partially dislodge the pelvic tumor, and the patient was kept in bed until six days later, October 31st, when she was given ether and a thorough examination made. Dr. F. W. Johnson kindly saw the case with me in consultation. We found the fundus uteri out of the pelvis, and the cervix high; and we also made out a cystic tumor apparently of the right ovary, the size of a cocoanut.

On account of the limited space in the abdomen, and the rapidly growing uterus, it seemed best to remove the cyst by abdominal section. Having allowed a sufficient time to elapse after the etherization to prevent all fear of miscarriage, I performed ovariotomy November 10, 1893. The patient made a normal convalescence, and was delivered of a living child March 23, 1894. I saw her and her child at my office May 9th, and the uterus was then in good axis but low in the pelvis, which was justo-minor to a slight degree. I shall report the case in more detail at some future time.

In looking over the literature of the subject of retrodeviations of the pregnant uterus, I got the impression that the condition is of fairly common occurrence, and also that its early detection and treatment are of much more importance than one would be led to expect from the cursory manner in which the subject is treated by the text-books.

The most recent and most complete work on this subject that I have found is an article by Dr. Sigmund Gottschalk, of Berlin,[2] "Zur Lehre von der Retroversio uteri gravidi." Gottschalk contrasts a statement made in the last edition of Schroeder's text-book, to the effect that retroversion of the pregnant uterus is seldom found, and that most cases right themselves during pregnancy, with a statement of Chrobak's that in his (Chrobak's) experience the retroverted pregnant uterus only seldom rights itself, whereas the retroflexed gravid uterus, in a vast majority of cases, does not right itself at all.

Gottschalk makes a strong plea for the distinction of retroversion from retroflexion, and sides with Chrobak in his views as to the spontaneous righting. He thinks that it is only those uteri that were retroverted before becoming pregnant that we can expect to right themselves, and with them there is much doubt. Those becoming retroverted or flexed during pregnancy have a much more unfavorable prognosis.

To show the gravity of the condition he collected sixty-seven cases of death due to retrodeviation of the pregnant uterus; the causes of death including uremia and exhaustion, gangrene of the bladder, tearing of the bladder, peritonitis in consequence of gangrene of the bowel, and occlusion of the bowel from torsion of the uterus on its axis.

I have found a case of hemichorea in pregnancy caused by acute retroflexion of the gravid uterus, the chorea disappearing on the replacement of the uterus.[3] Also, a case of pregnancy in a retroverted uterus, with distension of the bladder and sloughing of the vesical mucous membrane, in which the patient miscarried at five months; recovery.[4]

W. S. Stewart reported before the International Medical Congress at Washington, in 1887,[5] the history of a case of retroflexed pregnant uterus, first seen when two and a half months along, which was allowed to go to term. The uterus was replaced during labor; after the os was dilated it fell back, but was again replaced, and the woman was finally delivered of a living child, and made a good recovery.

This case is to be contrasted with one reported by Wenning,[6] of dextrotorsion of the pregnant uterus simulating extra-uterine pregnancy, in which he did celiotomy at the sixth month, and the patient aborted and died of sepsis; and also with a case reported by Gottschalk,[7] where there was acute obstruction of the bowels due to a retroflexed pregnant uterus at four months. He performed celiotomy when the patient was practically moribund, and she died in twelve hours.

It is plain to my mind that retrodeviation is a complication of pregnancy that is very likely to endanger the mother's health, or even her life; and the earlier in pregnancy it is diagnosticated and treated, the better the prognosis.

As to treatment, one must distinguish clinically between the retrodeviations (1) *non-incarcerated*, and the uterus that has grown so large that the fundus cannot rise by the promontory of the sacrum, or the (2) *incarcerated*.

As to the first class, it is admitted that a retroverted and pregnant uterus, although firmly adherent, may rise up into the pelvis without artificial aid, such is the softening effect of pregnancy on adhesions. That is to say, it is possible it may not enter Class 2. It is seldom that the attending physician is able to diagnosticate a retrodeviation occurring during pregnancy from one originating before pregnancy. When seen in the early months, especially when adhesions are present, the presumption is that the malposition antedates the

[2] Archiv für Gynækologie, 1894, xlvi, 358-383.

[3] Cameron, J. C.: Montreal Medical Journal, 1891-2, xx, 499 501

[4] Corkhill, J. G. G.: Lancet, 1887, ii, 1311.

[5] See Transactions, ii, 446.

[6] American Journal of Obstetrics, 1890, xxiii, 155-167.

[7] Loc. cit., p. 361.

pregnancy. Such a distinction is, to my mind, of no importance as far as treatment is concerned.

I contend that it is safer and that the danger of abortion is less, to treat all retroverted pregnant uteri as soon as diagnosticated, with packing and pessaries until such time as the organ has become so large that it cannot fall backward into the pelvis. This will be between the third and fourth month.

I think that there is a belief in the profession that pregnant uteri should not be treated by vaginal packing, and that packing the vagina causes abortion. This I believe to be erroneous. Certainly such treatment did not cause abortion in the cases I have reported. When the uterus is replaceable and has been replaced, it should be held in the normal position by a suitably-fitted pessary. It is well to leave out packing during the times that would be the menstrual periods.

As regards Class 2, the incarcerated uteri, the treatment is to dislodge the fundus and put it in its proper position as soon as possible. To this end ether may be necessary, although in a majority of cases the replacement is readily performed by placing the patient on her back with knees drawn up, seizing the cervix with a tenaculum and pulling downward on this, and at the same time pushing the fundus up with one or two fingers in the rectum.

When the fundus is emerging from the pelvis, I let go with the tenaculum and pushing the cervix backward with a finger in the vagina, massage the fundus forward, with my other hand on the abdomen. When this method proves unsuccessful, I put the patient in the knee-chest position and repeat the procedure.

In Case VIII, which exhibited a most unusual combination of pathological conditions, the uterus was so large, being four and a half months pregnant, that very forcible manipulation succeeded in only partially dislodging the fundus. Several days later, however, it was found in its proper position.

The small size of the child in this case is of interest. It seems probable that the surgical interference and the cutting off of the ovarian artery on one side was accountable in a measure for this. It is safe to say that had the case been allowed to take its course without surgical aid, she would either have aborted or had a difficult labor.

In Case VII, it occurs to one as strange that the introduction of two bougies four inches in the uterine cavity and subsequent dilatation of the cervix did not produce abortion. The explanation is found in the fact that the products of conception were located in the uterine horn and were not reached by the bougies.

Cases VII and VIII are striking instances of the great tolerance of the pregnant uterus; and their happy outcome, as well as the results of my investigation of the literature of the subject, confirm me in my belief that all retrodeviations of the pregnant uterus should be treated by replacement as soon as diagnosticated.

Symptoms of exaggerated backache, dysuria, intractable nausea and vomiting, or pelvic pains occurring during early pregnancy, should lead at once to a bimanual examination, and the physician should satisfy himself that the uterus is in proper position.

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Sulphur from Ireland. — Sulphur was once a lucrative product of Ireland, and mines were worked at Ballymontagh in the County Wicklow. It is now believed that the mines can still be worked on profitable terms, and it is likely that they will be re-opened.

## Clinical Department.

### A CASE OF EMBOLISM OF THE RIGHT FEMORAL ARTERY APPARENTLY FROM CARDIAC WEAKNESS.[1]

BY SAMUEL L. ABBOT, M.D.

The patient was a middle-aged married woman, in comfortable circumstances, who up to the time of the attack was in fair health. There was no history of previous rheumatism or influenza. Her health had not been robust at any time, but she was not an invalid. She was in the habit of drinking beer moderately every day.

The first intimation of the attack was a moderate pain in the right foot, coming on in the afternoon. Towards night the foot became very white and extremely cold. The next morning while walking across the room the patient's leg gave way under her and she turned her right ankle painfully. There was some purple discoloration above the ankle, and the leg below the knee had become quite cold. She was still able to walk with some difficulty. The following morning, on coming down stairs, she was seized with a very acute pain in the outer cords of the popliteal space, which led her to suppose that she had ruptured something at this spot. From this time she was unable to walk. On this day I saw her for the first time, and found the outside of the leg from the knee down of a deep purple color, exactly like that of a venous clot, and there were several spots of purplish ecchymosis on the inside up to the knee. The whole leg from the knee down was extremely tender to the touch and considerably enlarged from edema; the circumference at the calf of fourteen and five-eighths inches, being two inches greater than that of the left calf. The outer hamstring tendons and the popliteal space were exquisitely tender to the touch, but no evidence of special local injury could be detected. Pain was felt on movement from the knee to the toes. Except for the local trouble the patient considered herself to be in her usual health. Her appetite was natural and her skin was cool. Her temperature, on the only occasion on which it was taken was 100°.

No pulse could be felt in the femoral artery at the groin, nor in that of the left groin. The left leg was apparently in its normal condition.

On examination of the heart its action was found to be extremely weak, pulsation 160 beats to the minute. There was a distinct want of emphasis to the second sound, and it was nearly as long as the first, the rhythm being very like that of the fetal heart. There was no abnormal cardiac murmur, no local tenderness or enlargement of the organ. At the wrist the pulse was extremely weak.

The leg was kept flexed at the knee as extension was extremely painful. Warm foot-baths were prescribed, the limb in the intervals being wrapped in several thicknesses of cotton wadding. A pill of one-thirtieth of a grain of sulphate of strychnia was prescribed, to be taken every two hours, with one minim of a one-per-cent. solution of glonoin. Five-grain tablets of Dover's powder were prescribed, to be taken, *pro re nata* for sleeplessness.

On the next day the limb was perfectly cold from two or three inches above the knee down, and the swelling was increasing upwards. The leg was not

[1] Read before the Boston Society for Medical Improvement, January 7, 1895.

painful when at rest, and was considerably less tender to the touch and somewhat less cold. The pulse had fallen to 120, but was somewhat intermittent, although stronger. The patient ate her usual amount of food with relish. The dose of strychnia was increased to one-twentieth of a grain and the solution of glonoin to two minims.

On the fifth day of the attack there was considerable edema of the *left* leg, extending half way up to the knee, without pain or discoloration, or apparent reduction of temperature. The ecchymosis of the right leg was increasing and passing around to the calf on the inside. Pulse 111, stronger and more regular. The heart-sounds were also stronger, and the rhythm was much better. There had been no uncomfortable feeling in the head from the glonoin, and the dose was increased to three minims of the solution, with five minims of the tincture of digitalis; the strychnia was continued.

On the next day the pulse had risen to 132; temperature 100°. Ecchymosis extended above the knee, with swelling and tenderness. Below the knee the leg was somewhat smaller, apparently from a constant exudation of bloody serum from behind, the cuticle being somewhat detached, perhaps owing to hot applications to the part at the outset of the trouble. The patient had had a good night under the influence of thirty grains of Dover's powder in divided doses. Her appetite was good and she had eaten a chop for breakfast.

On the seventh day there was a little twitching of the tendons of the wrist, and the strychnia was directed to be given at intervals of four hours. Pulse 102, a little irregular. Sole of foot warm. The next morning the patient was moribund, there being no pulse at the wrist.

I am led to report this case, as it must be one of great rarity. It is only the second that I have seen in a long professional experience. The first was under my care in the Massachusetts General Hospital and occurred in a patient affected with malignant endocarditis. In that case there was evidence of obstruction at the mitral valves, probably from a thrombus. In the course of the case embolism of the right femoral artery occurred, with disappearance of the cardiac souffle and the pulse in the right femoral artery at the groin. Under the use of glonoin the pulse returned to the groin, the embolus evidently being forced down the artery from the increased freedom of the circulation below, and the spots of venous ecchymosis turned to a raspberry color from the increased force of the circulation. In this case also the patient died.

In the present case there was no autopsy, and the only probable cause of the symptoms seems to have been the heart weakness. There was no gangrene in either case.

## CANCER OF RIGHT KIDNEY; NEPHRECTOMY; NO RECURRENCE AFTER EIGHTEEN MONTHS.

BY WILLIAM N. SWIFT, M.D., NEW BEDFORD, MASS.

A. G. T., forty-seven years old, butcher. No history of malignant disease in the family. Three sisters died of phthisis pulmonalis. Well until two years before, then began to run down. No definite symptoms until spring of 1893. Began to have night-sweats, and noticed a bunch in right side of abdomen.

I saw him in June, 1893. The patient was anemic, but showed no other symptoms except a tumor in right side of abdomen, about the size of a small cocoanut. It was just below the ribs, and extended back to the loin. Was slightly movable and somewhat tender on pressure. The patient complained of distress in the region of the tumor, but no sharp pain. Also distress in the right side of back, most marked when stooping over. Could not lie on left side at night, as it increased distress. Micturition frequent and little at a time. Marked sagging feeling in both testicles, and at times some pain in right testicle. The patient complained of weakness and profuse sweating. Urine normal in quantity, but contained small amount of urea. No albumin or abnormal deposit.

A diagnosis of probable tumor of the kidney was made, and operation advised. The patient decided to wait.

During the summer his weakness and sweating became more marked, and also the distress in his side.



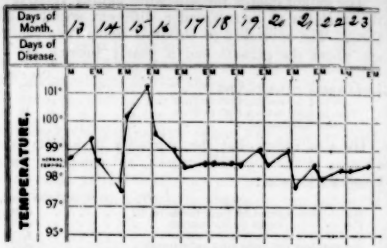
*Operation*, September 13, 1893, at St. Luke's Hospital. An incision, five and a half inches long, was made over the middle of the tumor three and a quarter inches from the median line. The tumor at once presented. It seemed to contain fluid, but a needle showed it to be a solid growth. It was enucleated without difficulty, and was found to come from the lower part of the right kidney. The kidney and tumor were removed. The ureter was tied, and its free end touched with strong carbolic acid. The vessels were tied with silk by transfixing the pedicle. The abdominal wound was sewed up in layers with catgut. Every precaution was taken to make the operation aseptic. No antiseptic solutions were used except for washing the patient's skin and operator's hands.

The tumor was as large as a good-sized cocoanut. It originated from the lower and outer part of the kidney, and was completely encapsulated. Microscopic examination showed it to be a carcinoma.

The patient did perfectly well, and left the hospital on the twenty-third day.

The amounts of urine passed on the days following

the operation were: September 13th, 12 ounces; 14th, 16 ounces; 15th, 16½ ounces; 16th, 22 ounces; 17th, 15 ounces; 18th, 28 ounces; 19th, 22 ounces; 20th, 30 ounces; 21st, 36 ounces; 22d, 31 ounces; 23d, 31 ounces.




After the operation the patient at once began to gain, and now considers himself in perfect health. He has driven a butcher's cart all winter, and has not missed a day's work. His urine at present is normal in quantity, contains a normal amount of urea and no albumin or abnormal deposit.

## Medical Progress.

### REPORT OF PROGRESS IN PUBLIC HYGIENE.

BY S. W. ABBOTT, M.D.

(Concluded from No. 15, p. 360.)

#### THE SANITATION OF THE ROMAN CAMPAGNA.[5]

THE malarial character of the Pontine marshes has been known for centuries. The region has become deserted on account of its poisonous exhalations, due to imperfect drainage, and the peculiar character of its undulating volcanic soil. Soon after the unification of the Kingdom of Italy, the reclamation of this region began to receive careful consideration from the government, and various measures were proposed to remedy the evil. At one place plantations of eucalyptus trees were made, which proved a failure so far as an effectual amelioration of the miasma was concerned.

The drainage of the soil finally was believed to be the proper remedy, and the work was entered upon soon after the enactment of a law of 1878 providing for the carrying out of the scheme.

The basin, fringing the ancient, but now disused southern arm of the Tiber estuary, on which once stood the city of Ostia, contains a low-lying tract having the following area:

| | Acres. |
|---|---|
| *a.* Permanently submerged | 1,690 |
| *b.* Inundated in winter | 768 |
| *c.* Saturated and useless | 2,608 |
| *d.* Higher ground, fairly dry | 227 |

A total of 4,693 acres, or about 7 1-3 square miles.

The upper levels are to be drained by gravitation, and the lower areas by pumping. The high level drains comprise a total length of nearly 79,000 feet. Two engines pump the water of the low levels. The pumps were started in December, 1889, with the water about twelve inches above the marshes; and after 116 hours of intermittent working, the water-level was reduced over the whole marsh 19½ inches.

[5] Giorno del Genio Civile 1893, p. 265.

After this the work was continued at different times till the water-level was reduced six feet lower. The average working period is 1,200 hours per year.

The cost of the whole works, including working expenses and maintenance has been about $115 per acre.

The reclamation of the whole area has now been effected; the district is becoming repopulated, and plentiful crops of wheat, barley and oats are now raised upon the land.

#### MUNICIPAL SANITATION.

In the literature of sanitary science one of the most noted papers of the half-century nearly closed, was the report of the Chief Medical Officer of the Privy Council of England,[6] in which it was shown that a marked decrease in the mortality of certain English cities was coincident with important improvements in municipal sanitation, consisting mainly of the introduction of pure water-supplies, systems of sewerage, disposal of offal, etc.

A discussion has recently occurred in the Berlin Medical Society, in which similar facts were brought out in regard to the effect of the magnificent works now in operation in that city upon the health of its inhabitants. One writer (Zadek) had attempted to prove that this improvement or decrease in the death-rate was due to a decrease in the birth-rate and to changes in social conditions, and not to sanitary improvements. Dr. Oldendorff answers him very fully in a paper bristling with figures, proving very conclusively, the fallacy of Zadek's views, and taking a similar position to that which Dr. Farr had taken many years earlier in regard to the decline of the death-rate of London.

Dr. Oldendorff[7] shows that the improvement in the health of Berlin is chiefly manifest in the decline of infant mortality in the past ten years. This decrease is a measure of the improvement in the health of the city and is shown not only among the children of the poor but among all classes.

He presents a table, in which the general death-rates, the death-rate of children under one, as compared with the total population, and with the births for each of the thirteen districts of the city, are given for the four years, 1876, 1880, 1885 and 1890; and in each and every instance the decrease is shown.

The two decades, 1871–80 and 1881–90, are then compared with each other with reference to the mortality per 10,000 from each of ten causes of death, showing an improvement in all except measles and whooping-cough. The figures are as follows:

MORTALITY PER 10,000 OF THE POPULATION, FROM CERTAIN DISEASES, IN BERLIN.

| Causes of death. | 1871–80. | 1881–90. |
|---|---|---|
| Measles | 2.3 | 3.1 |
| Scarlet Fever | 5.7 | 3.5 |
| Small-Pox | 0.1 | 0.1 |
| Typhoid Fever | 7.3 | 2.0 |
| Dysentery | 2.0 | 0.6 |
| Diarrhœa and Cholera Morbus | 48.1 | 32.8 |
| Diphtheria and Croup | 16.0 | 14.3 |
| Whooping-Cough | 3.2 | 3.3 |
| Phthisis | 35.3 | 32.3 |
| Acute Lung Diseases | 17.0 | 16.1 |

[6] Ninth Report of the Privy Council, 1866. Report by Dr. Buchanan on the results which have hitherto been gained in various parts of England by works and regulations designed to promote the public health.

[7] Die Sterblichkeitsverhältnisse Berlins mit besonderer Berücksichtigung der Verhandlungen der Berlin. Med. Gesellschaft uber den Einfluss hygienischer Massnahmen auf die Gesundheits Berlins. Von A. Oldendorff. Centralblatt für Allgemeine Gesundheitspflege, xiii, 1894, p. 327.

Comparing Berlin with the sixteen Prussian cities having over 100,000 inhabitants, it had advanced from the twelfth rank in relation to mortality in 1876, to the sixth place in 1891.

When compared with the 92 cities of over 20,000 people it had the twenty-eighth place in relation to the general mortality, and the ninth in regard to the mortality of infants under one year.

While, in Berlin the mortality of infants had decreased by 34 per 100 births, in the surrounding province of Brandenburg it had increased 12 per 1,000. The greatest improvement in infant mortality had been in the decrease of deaths from diarrhea and cholera infantum.

There has also been shown a very marked decrease in the death-rate from typhoid fever — from 6.3 per 10,000 living in 1876 to 0.9 in 1890.

One of the most convincing of the many tables presented is that which gives the mortality, after the introduction of a thorough system of sewerage, of the inhabitants living in houses connected with the public sewers as compared with those which were not thus connected. The houses are divided into three groups, according to the number of tenants; and the improvement in health, of the well-sewered houses is distinctly shown.

The author concludes that the improvement of the health of Berlin is mainly due to the introduction of these great public measures; the well-filtered water-supply, and the removal of the sewerage by the radial system to irrigate fields outside the city.

## INFANT MORTALITY.[8]

In a paper upon the maintenance of helpless infants, Dr. Krisowski gives many facts relating to infant mortality in general. He quotes a summary of Wappaeus and Oesterlen of from fifteen to sixteen million deaths in all Europe — in which it is stated that the mortality of infants under one year averages 20 per cent. of the total mortality in the whole of Europe, the extremes being 10.4 per cent. in Norway and 36 per cent. in Würtemberg.

The average mortality of children up to the third year of life for all Europe is, according to the same author, 33⅓ per cent. of the total mortality.

The following table from the official Prussian statistics gives the mortality of infants and children up to five years of age, expressed as a percentage of the mortality of the first five years of life:

| | Per cent. |
|---|---|
| First day of life | 2.9 |
| Second " | 1.7 |
| Third " | 1.1 |
| Fourth " | 0.7 |
| Fifth " | 0.6 |
| Sixth " | 0.7 |
| Seventh " | 0.8 |
| First week of life | 8.5 |
| Second " | 4.5 |
| Third and fourth weeks of life | 7.0 |
| First month of life | 20.0 |
| Second " | 10.0 |
| Third " | 6.0 |
| Fourth " | 5.0 |
| Fifth " | 4.0 |
| Sixth " | 3.5 |
| Seventh " | 3.0 |
| Eighth " | 2.7 |
| Ninth " | 2.6 |
| Tenth " | 2.4 |
| Eleventh " | 2.3 |
| Twelfth " | 2.3 |
| First year of life | 65.0 |
| Second year of life | 16.5 |
| Third " | 8.5 |
| Fourth " | 6.0 |
| Fifth " | 4.0 |
| | 100.0 |

The author quotes the following figures relative to the mortality of infants under different social conditions. The mortality of children under one year of age where the parents had a yearly income of

| | Per cent. |
|---|---|
| Less than 600 marks, $145 | 29 |
| 600 to 1,500 marks, $145 to $360 | 25 |
| 1,500 to 3,000 marks, $360 to $720 | 18 |
| Over 3,000 marks | 15 |

He also shows that the mortality of infants from diseases of the digestive organs, as compared with living births, was:

| | Per cent. |
|---|---|
| For children nursed by their mothers | 0.74 |
| For children nursed by wet-nurses | 0.77 |
| For children fed upon cows' milk | 4.21 |
| For children fed upon milk substitutes | 6.77 |

Illegitimacy also has a marked effect on infant mortality, the percentage of deaths of legitimate and illegitimate infants, as compared with births, being as follows according to Uffelmann:

| | Legitimate. | Illegitimate. |
|---|---|---|
| In France | 14.0 | 30.0 |
| In Austria | 22 9 | 35.1 |
| In Sweden | 14.4 | 24.8 |
| In England | 14.0 | 35.0 |
| In Bavaria | 39.6 | 45.0 |

These figures differ considerably from those of factory towns in England. Dr. C. Porter, of Stockport, England, gives the following as the result of five years' observation (1889–93) in that city:[9]

"The number of deaths on the *first day of life* is three times greater than that on any succeeding day, and considerably exceeds the combined total of the deaths in the remaining days of the first week. On the second day, mortality falls to one-third of its previous height, and then continues to decline rapidly.

"The deaths during the *first week of life* constitute more than half of the deaths in the first month of life. The rate of mortality in the first week is such, according to the registrar-general, that if maintained uninterruptedly, every infant born would die long before completing its first year of life. In the *second week*, however, mortality falls to less than one-third of its previous height.

"The infant mortality of the *first month*, is nearly double that of any other month, and amounts to about one-fifth of all such deaths. In the second month it falls to about one-half its previous height. In the third month there is but little diminution; but thereafter the mortality decreases gradually, except in the eighth month."

The foregoing figures apply to a manufacturing town of about 150,000 population, and hence might be considerably modified by a longer experience and a large number of city populations.

In summing up the causes of the high rate of infant mortality in Stockport, Dr. Porter mentions, as the diseases or causes of death certified: (1) prematurity and low vitality at birth, (2) respiratory diseases, and (3) diarrheal and digestive disorders. As other and important causes, he mentions, primarily, the employment of young married females away from home, the ignorance of working mothers as to infant-feeding, the administration of opiates, illegitimacy and infantile in-

[8] Ueber die Versorgung der hülflosen verlassenen Kinder. Vierteljahrsschrift für öffentliche Gesundheitspflege, vol. xxvi, 1894, p. 517.

[9] Public Health, vol. vii, January, 1895, p. 138.

surance. (62.8 per cent. of all the children in Stockport who died under five year of age were insured.) Another cause is the attendance *of ignorant and unqualified midwives*, a class whose advent at the bedside is fraught with danger, both to the mother and the child.

In the discussion which followed this paper prominence was given to the subject of the employment of married women away from home, and further statistics were given relative to Blackburn, a city of 200,000 inhabitants, supporting the same view.[10]

### COMPARATIVE MORTALITY FROM PHTHISIS IN ENGLAND AND IN MASSACHUSETTS.

The mean annual death-rate per million inhabitants living in ten-year periods is shown in the following table:

| | England. | Massachusetts. |
|---|---|---|
| 1851-60 | 2,679 | 3,993 |
| 1861-70 | 2,475 | 3,495 |
| 1871-80 | 2,120 | 3,280 |
| 1881-90 | 1,780 | 2,935 |
| 1891-93 | ..... | 2,360 |

Other tubercular diseases are not included in this summary.

The death-rate from consumption, per ten thousand of the population living at each age-period in Massachusetts is given below:

| Ages. | 1863-90. | 1890. |
|---|---|---|
| 0 to 5 | 17.25 | 14.62 |
| 5 to 10 | 3.23 | 3.24 |
| 10 to 15 | 6.49 | 6.62 |
| 15 to 20 | 31.75 | 27.77 |
| 20 to 30 | 50.25 | 48.23 |
| 30 to 40 | 43.83 | 43.31 |
| 40 to 50 | 36.74 | 35.88 |
| 50 to 60 | 36.51 | 30.24 |
| 60 to 70 | 48.00 | 33.85 |
| 70 to 80 | 60.22 | 33.72 |
| Over 80 | 44.48 | 33.51 |
| All ages | 31.67 | 25.09 |

### LEAD-POISONING CAUSED BY THE USE OF SUGAR OF LEAD IN REPAIRING A MILLSTONE.[11]

In November and December, 1893, several persons living at Lang-Göns, near Giessen, were attacked with lead-poisoning. It was assumed that the illness was caused by lead enamel in the family cooking-utensils. An examination showed that the utensils were free from lead. Attention was then directed to the food; and it was found that the flour came from a grist-mill to which the farmers took their grain to be ground. Out of eleven samples of flour and four of bread made from it, seven of the former and three of the latter contained lead, the amount varying from .013 to .068 per cent. of the ash. It was a matter of interest to discover whether it existed in the metallic state or as a salt. It was found to exist as a soluble salt.

Analyses of fragments of the mill-stones of the suspected mill, and of substances used to repair the same, showed that a grayish-white substance was used to fill up gaps and cavities in the top stone which, according to the miller's statement, was "alum." But analysis proved it to be acetate of lead. The question, how the miller came to use this poisonous substance was submitted to a court trial, but the result was not stated.

[10] It is undoubtedly due to the same cause that the relative mortality from cholera infantum in Fall River for a period of twenty years surpassed that of any city or town in the State, being nearly double that of Boston. It was also true that the percentage of married women employed in the mills, as compared with the total population of the city, was higher than that of any other city or town.

[11] Zeitschrift für Hygiène, 1894, p. 1.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, February 4, 1895, DR. C. J. BLAKE in the chair.

### A NEW CANULA.

DR. BRIGGS showed a new self-retaining drainage canula.

DR. F. S. WATSON read a paper on

### CASTRATION FOR HYPERTROPHIED PROSTATE,[1]

and showed a patient on whom this operation had been performed by Dr. M. F. Gavin.

The patient, in answer to questions, said: "This trouble commenced six years ago. There was frequent desire to pass water, which increased until a year and a half ago; I had to pass water every hour or two. Indeed, the stream almost entirely stopped. The pain in the penis was terrible when trying to pass water; and the only way I could succeed was by the application of hot water. After applying hot salt water for fifteen to thirty minutes I could pass one-half to one teacupful. Then the condition grew worse, so that I could pass only a tablespoonful at a time, and with most terrible pain through the penis and neck of the bladder. That condition persisted up to the time of the operation. I was able to sleep only a little owing to pain, and I became very much used up. I lost about thirty pounds in weight. Since the operation, October 3, 1894, I have gained thirty-five pounds, and I never felt better in my life. I suffer no pain now. The water is clear, and I think I empty the bladder. I find that my mind works quicker than before the operation."

DR. CABOT: This subject is one of the new and interesting questions in surgery, and the immediate good effect of the operation is certainly attested by the cases that Dr. Watson has reported, as well as by a considerable number of previously reported cases. I am also cognizant of a few cases which have not yet been reported, some of which are favorable, but one or two of which are not so favorable. The effect of castration in reducing the size of the chronically hypertrophied prostate is undoubted. A sufficient number of cases have been reported to show that. Whether this operation has any decided effect upon prostates which are filled with fibroid tumors, which are therefore in a condition analogous to that of the uterus with its fibroid tumors, is as yet doubtful. We have not sufficient information in regard to cases of that sort.

I think that one point which ought always to be taken into account before much is promised from the operation, is the condition of the bladder. A bladder which has been long distended behind a hypertrophied prostate, which therefore contains a good deal of residual urine and has lost its muscular contractibility, cannot be expected to recover its functions and provide for normal urination as completely as a bladder which, always striving against an hypertrophied prostate, has itself become hypertrophied. A concentrically hypertrophied bladder would naturally provide power for urination where a dilated and thinned bladder would not. So much for the local question.

[1] See page 378 of the Journal.

In regard to the more general question of the effect of castration upon these patients, I think we have everything to learn.

The operation is one of no danger, takes but a few minutes, and confines the patient to the bed, usually, but for a few days. If so simple an operation will save the patient all the discomfort of an hypertrophied prostate, it is an enormous advance in our means of treating this class of cases. We should not lose sight, however, of the possible disadvantages which the operation may entail, and in regard to which we are as yet so much in the dark. We know but little of the functions of the testicles as possibly affecting the nervous system, and sufficient time has not elapsed since this operation has been practised to supply us with information upon this point. We know that after thyroidectomy had been practised for some years with good success, it was discovered that certain very serious changes in the patient sometimes followed the operation. Whether any similar serious results will follow the operation of castration in men who are already entering upon old age, we cannot yet tell. We know, however, that many men, prominent in the treatment of nervous diseases, are using testiculin as a remedy in certain grave nervous disorders and are reporting good results from its use. This fact may well lead us to reserve our opinion as to the final place of this operation. It may be necessary to wait for considerable time before we can ascertain whether castration is followed by any decided diminution in vitality, or whether senility comes on more quickly after loss of the testicles. Certainly, many patients will demand knowledge on these points before consenting to undergo the operation. One patient discussing the question of submitting to the operation, asked whether it would have any effect upon his voice, as he had to do a great deal of public speaking. This is another point which may need time to clear up, although the probability is, that no such effect will be produced in a mature voice.

DR. WATSON: In regard to the senility of which Dr. Cabot spoke, one of the points I meant to make was that it was important to know if any changes injurious to the general health of the patient would occur after the operation. But we must remember the stage of the disease in the one to whom we give that advice. To the man who is going to die in a few weeks the question of general injurious results, if any, that might follow the operation, does not concern us so much as the possible immediate benefits. I think that is a very important point Dr. Cabot has made, however, as to our being able to urge the operation at an early stage of the disease.

DR. CABOT: I agree with Dr. Watson, that in patients who are in a desperate condition the operation is a perfectly proper one, and one that I am recommending and using in such cases. If, however, the removal of the testicles is to have no deleterious effect, the operation should have a much wider applicability than to these desperate cases. If there are no objections to its use, patients with commencing trouble from their prostates, might, by resorting to it early, save themselves from any of the secondary effects in the bladder and kidney which lead to such serious consequences.

DR. BRADFORD asked if there was any accurate evidence as to the value of testiculin. The fact that it had been used in tabes is hardly of sufficient value to justify its acceptance as a therapeutic agent, as so many various measures have been tried in that affection.

DR. H. P. BOWDITCH: I suppose that the doctor is aware of the fact that the French journals have a good many cases of reported success in treating a great variety of cases with testiculin. I do not know how much allowance is to be made for French enthusiasm. A gentleman who came home from Paris a year or two ago said about half the members of the French Academy were taking the treatment.

DR. G. H. MONKS read a paper on

THE MUSCLES OF EXPRESSION.

## THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., BOSTON.

THIRTY-FOURTH Annual Meeting, January 12, 1895, the President, DR. CHARLES M. GREEN, in the chair.

DR. EDWARD REYNOLDS reported

CASES OF RETROVERSION OF THE PREGNANT UTERUS.

DR. W. L. BURRAGE reported

CASES OF RETRODEVIATION OF THE PREGNANT UTERUS, INCLUDING A CASE OF PREGNANCY IN AN INCARCERATED CORNU, AND A CASE COMPLICATED BY AN OVARIAN TUMOR.[1]

DR. A. D. SINCLAIR said that incontinence of urine from overflow of a distended bladder was a symptom he had noticed in several cases of retroversion of the pregnant uterus. In one case he withdrew 106 ounces of urine and then had no difficulty in replacing the uterus.

DR. F. H. DAVENPORT said that he had seen a case where the only complaint made was inability to pass urine. He found an incarcerated retroverted uterus. Packing relieved the symptoms and later a pessary was used. He referred also to a case, where the uterus formerly retroverted without symptoms, resumed the normal position as soon as the patient became pregnant.

DR. G. H. WASHBURN spoke of a case where the patient was said to have had two "false conceptions" at three months. She again felt the same symptoms coming on after three months amenorrhea. He found a retroverted pregnant uterus, which he held in position with packing and the patient went to full term. After delivery the uterus returned to the retroverted position and she again became pregnant. The same conditions demanding the same treatment occurred as before and everything went well.

DR. C. M. GREEN was especially interested in these cases from the absence in all of bladder trouble, meaning by that either retention or difficulty in passing urine. After an unfortunate experience resulting from packing, he has never dared to pack the vagina in pregnancy for fear of producing abortion. He was, therefore, interested to learn that some of these cases had been packed without harm.

DR. J. R. CHADWICK said he wrote a paper some twelve years ago incorporating eighteen cases of this affection. He entitled the paper "Pregnancy of the Retroverted Uterus," as he considers that the state of affairs, and not that the normally placed pregnant

[1] See page 380 of the Journal.

uterus becomes retroverted. He rarely used ether in his cases. In two cases he failed to raise the uterus without ether, but the uterus in both cases returned later of itself to the normal position. He also found that putting in a ring pessary with the uterus still retroverted gradually brings the uterus into place. He has been generally disappointed with the knee-chest position and prefers to correct the displaced uterus with the patient standing erect. This causes the uterus to descend and a little pressure will make the uterus fall forward. If the uterus stays in place after reposition he feels sure it is pregnancy, if not it might be pregnancy or might be fibroid.

Dr. Edward Reynolds said he had used ether in four cases mainly if not wholly for diagnosis; but with ether reposition is easy, while without it it is often difficult. The papers to-night certainly showed the importance of examining a pregnant woman as soon as she complained of pelvic pains.

Dr. A. D. Sinclair confirmed Dr. Chadwick's observation that it was often easy to replace the uterus in the erect position.

Dr. W. L. Burrage reported orally

A CASE OF FIBROID OF THE UTERUS,

and showed the specimen. The patient was thirty-nine years old, single. The tumor was growing very rapidly. He performed laparotomy and found that the tumor came up under the peritoneum from the region of the internal os, pushing the uterus into the right iliac fossa. The tumor when removed weighed ten and one-quarter pounds. The patient made a good recovery.

Dr. A. D. Sinclair spoke of a case he had followed for ten years. In the last six months it had grown very rapidly and was removed by operation.

Dr. A. Worcester reported

A CASE OF RUPTURE OF THE MEMBRANES IN THE SIXTH MONTH.

The patient, a multipara, was put to bed, and for eight weeks the liquor flowed away, delivery not taking place till the end of this time, which was within three weeks of full term. The liquor was caught on pads and weighed, fifteen pounds being collected in this manner. The infant weighed six pounds, was apparently well, but died suddenly on the second day.

Dr. C. W. Townsend spoke of a case he had attended two years ago where the membranes ruptured four weeks before the birth of the child which occurred about one week ahead of time. Six or eight napkins were soaked daily with liquor. The child lived.

## Recent Literature.

*A Manual of Hygiene.* By Mary Taylor Bissell, M.D. New York: The Baker & Taylor Co. 1894.

This manual was, as the author states, primarily written for medical students, as a text-book of hygiene adapted to American conditions, for use in the class-room.

The different topics embraced under the head of public and individual hygiene, are treated in twenty chapters, with marked clearness, and with sufficient fulness of detail for the purposes of the general student, either in the professional schools or in the higher grades of schools and colleges.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, APRIL 18, 1895.

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## ON HEREDITARY CEREBELLAR ATAXIA.

Under the name of "Hereditary Cerebellar Ataxy" (*Hérédo-Ataxie Cérébelleuse*) Dr. Pierre Marie has recently called attention to a morbid syndrome resembling Friedreich's disease, and which seems to claim a place apart in nosology.[1] Marie's description is based on sixteen cases, two of which are furnished by Fraser,[2] three by Nonne,[3] eight by Sanger Brown, and three by Klippel and Durante.[4]

Since the publication of Marie's paper, Dr. Paul Londe, editor of the *Annales de Médecine*, has reported three carefully observed cases (in collaboration with Drs. Brissaud and Robin); has also collected a series of cases published prior to Marie's researches, apparently belonging to the same group, and has embodied the results in an excellent monograph just issued by Battaile et Cie., Paris.[5] From a study of these publications, we draw a brief *résumé* of the principal characteristics of the disease in question.

By its symptomatology, cerebellar heredo-ataxy resembles Friedreich's disease. There is the same staggering gait, the same pains and numbness in the lower limbs. The knee-jerk, however, is not lost; it is, on the contrary, exaggerated. At a later date, the arms become affected with incoördination; arms and head tremble; vertigo is a frequent, not constant, symptom; Romberg's sign is always absent; the patient has no difficulty in walking with the eyes shut.

On observing the gait of a person afflicted with cerebellar heredo ataxy, one cannot but notice the two principal symptoms — the disorder of equilibrium, especially manifest in the staggering and in the difficulty which the patient experiences in standing; and the incoördination of movements of the lower limbs. The titubation disappears when the patient lies down,

[1] Semaine Médicale, 1893, p. 444.
[2] Fraser: Defect of the Cerebellum occurring in a Brother and Sister, Glasgow Medical Journal, 1880, p. 50.
[3] Nonne: Arch. f. Psychiatrie, 1871, p. 283.
[4] Klippel and Durante: Contribution to the Study of Family and Hereditary Nervous Affections, Revue de Méd., October, 1892, p. 745, and Semaine Médicale, 1892, p. 467.
[5] Paul Londe: Hérédo-Ataxie Cérébelleuse, p. 248, Paris, 1895.

but in typical cases the muscular incoördination persists.

The ataxia of the upper extremities (a late symptom) is accompanied by certain trembling movements which only exist during the performance of acts of volition, and resemble the "intentional trembling" of multilocular sclerosis. Choreiform convulsive shocks, exaggerated contractions of the muscles of the face and ataxia of speech have been noted by several of the authors. The utterance of the patient, says Londe, is slow, jerky; the words are sometimes spoken in a precipitate, explosive manner, as if there was ataxy of the articulatory muscles. There is especial difficulty in the enunciation of certain letters, as labials and palatals. The voice is often indistinct and guttural. There is a peculiar rotatory trembling of the head during emotion or during standing, which is very characteristic.

It might be supposed that the disorder of equilibrium was due to abolition of the muscular sense; but this, says Londe, is not the case; for in all the observations where it has been tested, the muscular sense has been found intact. The muscular force is not greatly diminished.

These heredo-ataxics suffer greatly from sensations of fatigue, especially marked in the morning, often accompanied by headache and backache, numbness and cramps in the limbs, twitchings, and other symptoms essentially neurasthenic. There is a *stolidity* about the countenance of these patients when asleep (relaxation of the muscles of the face), and an aspect of amazement when they are awake (excess of contraction) quite characteristic, and remarked by both Sanger Brown and Londe.

The symptoms of psychical enfeeblement shown by these ataxics (irritability, diminution of the faculty of attention, hebetude, failure of memory) are sufficiently pronounced, but the ocular troubles are the most marked. These are: (1) atrophy of the papilla, generally bilateral, often slight, sometimes complete; (2) a consequent contraction of the visual field and diminution of visual acuteness; (3) disorders of the external ocular muscles, manifested by "nystagmiform or choreiform shocks" (not by true nystagmus). Many of these cases, says Marie, have presented a degree more or less pronounced of paralysis of the external rectus; Nonne observed paralysis of the rectus superior; Sanger Brown, an incomplete ptosis "giving to the countenance a singular expression of intense emotion."

The term "hereditary cerebellar ataxy" expresses the three fundamental characters of the disease. The ataxy we have above considered — there is both ataxy and titubation, and the latter, as Londe remarks, is strikingly suggestive of cerebellar disease. The hereditary nature of the disease is seen in all the instances in which it has been noted; in the observations of Londe, Marie, Nonne, Klippel and Durante. Sanger Brown's cases show five generations attacked successively, and numerous persons affected in the same family. It is oftenest a disease of early adult life, of females rather than of males.

As for the principal seat of the morbid lesions, the data which we possess respecting the pathological anatomy of the disease are confessedly rather meagre, since in reality they are founded on only well-conducted autopsies, the one of Fraser, the other of Menzel, the third of Nonne. In all these cases, the cerebellum was markedly atrophied. This organ weighed in Fraser's patient 81 grammes, in that of Nonne, 120 grammes, the normal weight being from 150 to 170 grammes (a diminution of one-quarter of the normal weight). Fraser remarks that it was principally the gray substance of the cerebellum which was reduced in volume. Both Fraser and Menzel also noted the disappearance of a great number of the cells of Purkinje; those that remained were altered. The spinal cord, examined by the microscope, exhibited no alteration; macroscopically, there was in Nonne's case a simple diminution in size. The lesions are, it will be seen, quite different from those which characterize Friedreich's disease. In the latter, we find also a notable diminution in the volume of the cord, but there are also degenerative lesions of great extent, involving Burdach's column, the column of Goll, the direct cerebellar tract, the crossed pyramidal column, and the cells of Clark.

The anatomical proofs of the cerebellar origin of this form of heredo-ataxy are reinforced by physiological considerations. An interesting part of Londe's treatise is the demonstration that experimental suppression of the cerebellum produces markedly similar functional troubles. If we take into account only the symptoms of deficit, we find that in both experimental and hereditary ataxia, there are astasia, titubation, and incoördination. The head and the upper limbs manifest the same instability during voluntary movements, and present at times oscillations having the character of intentional trembling. The gait of the mutilated animal and of the heredo-ataxic person is the same when the eyes are open and when they are closed; and if the phenomena of deficit are characterized by asthenia, there is certainly absence of paralysis. Luciani compares cerebellar asthenia to the asthenia of convalescence. To him, the cerebellum is *par excellence* the organ from which emanates muscular energy; the titubation is simply a manifestation of weakness. Londe denies that there is any marked diminution of muscular force in heredo-ataxy; there is a lack of coördinating energy; the titubation resembles that of drunkenness.

Cases of so-called atrophy of the cerebellum are few. Nothnagel has collected eight cases, in all of which there was one constant predominant symptom, uncertainty in the movements of the lower extremities, often also in those of the upper extremities. In almost all the cases, the speech was slow and jerky, and there was marked intellectual enfeeblement.

The visual phenomena of heredo-ataxia are ex-

plained by the connections of the cerebellum with the peduncles and the corpora quadrigemina.

With regard to the diagnosis of this disease, the resemblance to tabes dorsalis is slight. Cerebellar ataxia, says Londe, results from the suppression of the equilibrating function of the cerebellum; the muscular sense is intact. The tabetic has lost the muscular sense, but equilibrium can be maintained by the visual and auditory (vestibular) sensations which he receives. But the titubation is sufficiently characteristic of itself. Heredo-ataxy has the nearest resemblance to multilocular sclerosis, as there is hardly a symptom that is not common to the two diseases. In both we may have incoördination of movements of both lower and upper extremities, vertigo, ocular troubles such as diminution of the visual field, dyschromatopsia, diplopia, nystagmus, etc.; in both articulation may be jerky, and even explosive. But the hereditary and family nature of *sclerose en plaques* has not yet been proved, and the trembling of heredo-ataxia is seldom witnessed in the former disease. Marie has devoted nearly a whole lecture to the differential diagnosis between cerebellar heredo-ataxia and Friedreich's disease, the main points of which will be seen in this rapid enumeration of the principal distinctive characters of the former malady; the more advanced age of the patient when the disease first appears; conservation and even exaggeration of the patellar reflexes; frequence of spasmodic phenomena; the visual troubles; absence of cyphoscoliosis, absence of talipes.

With regard to the course of the disease — it begins in adolescence, or in adult life, with cerebellar ataxia; the lower limbs are first affected. If there are prodromic symptoms, they are those of ordinary neurasthenia: headache, backache, fatigue, etc. A traumatism, or strong emotion may usher in the morbid syndrome. It never results from infection or from syphilis. The disease is slowly progressive; it is not amenable to any real improvement, or to notable remissions. When the disease is declared, the standing posture and locomotion without assistance are impossible; confinement in bed eventually becomes necessary. The intentional trembling, and the ataxia of the head and upper members become noticeable and pronounced during the second period, or period of impotence. There is a third period, or period of absolute impotence, in which the ataxia is most marked, and in which there is permanent contracture of the legs, in flexion at a right angle. The duration of this disease may be very long. One of Sanger Brown's patients, and Fraser and Nonne's patients lived more than twenty-five years after the onset of the disease. The helplessness of the last stages becomes extreme.

Londe emphasizes the fact that the visual disturbances (ocular, motor, sensory) on which Marie lays stress, do not constitute an essential feature of the disease, and that in typical cases the symptom-picture may be reduced to its simplest expression: general incoördination with conservation or exaggeration of the reflexes.

## THE EMANCIPATION OF THE HORSE, AND ITS DANGERS.

When the curative effect of antitoxin serum had been demonstrated in the diphtheria of animals, and the question arose of its application to the human subject, it was found necessary, in order to obtain a sufficient supply, to choose an animal of large size, capable of losing large amounts of blood without injury to its health. The horse was chosen, as furnishing in the highest degree the characteristics of size, cleanliness and docility. It has been found that the slight attacks of diphtheria which the horses have had to undergo during the process of immunization, and the abstraction of blood for the production of antitoxin serum, do not injure the health of the animal. On the other hand, the horses, which, of course, are provided with the best of food and care, and regularly exercised, actually improve in condition under the treatment. The horse is transformed from a beast of burden, fed and trained with the idea of getting out of him the largest amount of hard work at the least expense, to a sort of pet upon whose care no expense is spared which may help to get him into the pink of condition. Instead of hard work he is given regular exercise, care being taken not to fatigue him unduly, for the animal whose blood is to be mixed with that of children must be free even from the taint of fatigue. It is doubtful if any of the several hundred horses now undergoing the immunization would exchange his present lot, where the only drawback is the occasional prick of the hypodermic needle, or the lancet which opens the vein, for his former life of the lash and burden.

When we consider the tremendous prospects of the antitoxin treatment, if, as is at least possible, it shall be found applicable to all forms of bacterial disease, and that, as in diphtheria, the horse will probably be called upon to furnish the chief supply, the value of the horse to mankind increases beyond computation. With the successive advent of steam, electricity and the bicycle as means of transportation, the importance of the horse for these purposes has steadily diminished, so that the possession of horses and carriages is rapidly becoming, except in special lines of business, more of a luxury than a necessity. It is interesting that at just the time the horse as a beast of burden and as a means of transportation is decreasing in value to mankind he should be called upon to fulfil the nobler function of an agent of healing.

The success of the serum treatment in diphtheria, however, brings with it the danger that "horse serum" will be vaunted as a cure for all the ills that flesh is heir to, and enthusiastically accepted, perhaps, before a thorough trial has been made. Such premature acceptance, however, cannot fail in the future as in the past to result in disappointment and chagrin. From St. Louis comes the report that Dr. Paul Paquin, Professor of Bacteriology in the State University of Columbia, having convinced himself that the horse is naturally immune against tuberculosis, has argued that the serum of healthy horses can be em-

ployed without artificial immunization in the treatment of tuberculosis in man. Although the serum is said to have been employed in fifty cases with results almost uniformly successful, the chronicity of the disease, and its proved susceptibility to temporary improvement under the most various modes of treatment, render it simply impossible to prove any treatment of value by its application to so small a number of cases, over a time of less than a year.

The possibility of a serum-therapy for syphilis, founded upon a venereal disease in the horse which is said to bear the strongest resemblance to syphilis in man, has been recently suggested by Dr. Duncan Manzies, of Gibraltar. The fact that syphilis has never been transmitted from man to the horse has suggested to Dr. Manzies the possibility of a kind of antagonism between the two diseases, upon which a method of serum-therapy might be founded.

In considering the horse as a possible source of supply for the healing agent of various diseases, it is to be remembered that he was not chosen because his serum had more antitoxic effect than that of other animals, but because the requisite amounts could be obtained from him more conveniently. It is, at least, probable that for curative effect in other bacterial diseases, as in diphtheria, the toxin must be obtained in the first instance from the human subject, and the immunizing and curative effect be tested by patient experimentation before practical results are reached. The fact, if proved, that tuberculosis or syphilis are not transmitted from the human subject to the horse may be due to other conditions of the blood than those which would give it power to immunize or cure a human subject.

It is necessary for the medical profession to remember that it is the antitoxin serum, and not serum of the horse alone, that cures diphtheria, in order not to be led into accepting "horse cures" for various diseases without sufficient investigation. A more minute investigation of the "sacred horse" which the ancient Trojans believed would bring them victory in their battles with their besiegers, would have saved them a good deal of subsequent trouble. Modern physicians would do well to profit by their example, and not accept a horse consecrated by fanatical enthusiasm and ill considered argument without most careful investigation, as an aid in their battle against disease. Because horses had proved themselves excellent animals to draw the chariot of Hector to battle, furnished no particular reason for exalting a horse as a talisman who was in some manner, "not previously determined by experiment," to give the Trojans a general success against the Greeks. Let us beware lest we find, as they did to their cost, that the conditions are different.

## MEDICAL NOTES.

An Exposition of Hygiene. — An International Exposition of Hygiene will be held in the Palace of the Liberal Arts in Paris, from the 15th of next May to the 15th of September.

The Medical Association of Georgia. — The Medical Association of Georgia will hold its forty-sixth annual session in Savannah, April 17th to 19th, inclusive.

Beri-Beri at Delaware Breakwater. — It is reported that a vessel recently arrived at Delaware from the Phillipine Islands whose entire crew is affected with a disease thought to be beri-beri.

A Warning to Obdurate Examiners. — At a recent examination in anatomy conducted by Professor Weichelbaum, a student who was plucked for the second time is reported to have prostrated himself at the feet of the professor, kissed his hand, and begged him to allow him to pass. On the professor's refusal he seized a scalpel, and threatened to commit *hari-kari*. Fortunately he was seized and held in time to prevent the consummation of his purpose.

The Antitoxin Treatment of Diphtheria. — Risel reports in the *Deutsche. med. Wochenschrift*, of March 7th, 114 cases of diphtheria treated in the city of Halle between November 11, 1894, and January 15, 1895. Of these, 89 cases were treated at their own houses, and 83 recovered; 70 of the 89 cases showed no involvement of the larynx and trachea, and of these 68 recovered. Of 19 laryngeal cases 15 recovered. Of the 114 cases 25 were treated at hospitals, with 23 recoveries. In 10 of these, in which there was no involvement, there were no deaths. Of 15 laryngeal cases there were three deaths. Out of the total of 114 cases, therefore, there were nine deaths, or 7.89 per cent. Thirty different physicians were concerned in the treatment of these cases, and bacteriologic examination was made in but a small number of them.

The Murder of Thomas Patton in Kansas. — Later and more accurate information tends to show that, in common with others, we were unnecessarily disturbed about the acquittal of McDonald and the conviction of Gray in the Kansas Supreme Court at Topeka, April 7th, for the murder of one Patton, on the ground of the employment of hypnotism. The facts seem to be that Patton was murdered, that McDonald shot and killed him in cold blood and without provocation, and that Gray, who had a motive for wishing Patton out of the way, incited McDonald to the act. Hypnotism was mentioned during the trial casually, but was not an active factor in the conviction. As we now understand the subject, Gray was convicted of murder in the first degree, and McDonald escaped, although he actually committed the murder. Whether this was a judicious conclusion of the trial, our legal friends and the community immediately concerned must decide. Our interest in the trial ceases with the disappearance of hypnotism from the case.

Ingenious Simulation. — *La Médecine Moderne* (March 2, 1895) gives interesting instances of the ruses adopted by French soldiers in order to deceive medical inspectors and escape disagreeable duty. Among them are smoking hay or straw to whiten the

tongue, and macerating an earthworm in brandy, and taking a piece of it to the major as a segment of tapeworm. The following ruse deserves mention. For some years there has been at Val-de-Grace the portrait of an artilleryman whose knee was swollen and presented the appearance of a traumatic hemarthrosis. On aspiration of the knee a black fluid flowed out, mixed with a little blood, but peculiar looking, and bearing no resemblance to any known pathological product. The discovery was finally made that the man had been injecting ink into his knee-joint.

THE DISCOVERY OF HELIUM. — The recent announcement of the discovery of a new element, argon, in atmospheric air, by Lord Rayleigh and Professor Ramsey, is already followed by the announcement by the latter that in his experiments with the mineral clevite, for the purpose of discovering a compound of argon, in which clevite was treated with sulphuric acid, argon was evolved, but associated with some strange gas. This turns out to be helium, the lightest of all the elements, the existence of which had already been inferred from the line $D_3$ in the solar spectrum. The existence of the new element was in a few days confirmed by Professor Crookes, who identified its spectrum. The discovery of an element whose existence had been previously inferred on theoretical grounds, is certainly a most remarkable vindication of chemical theory. The mineral clevite was supposed to yield nitrogen when acted upon by sulphuric acid. The evolvement in its place of a mixture of argon and helium, suggests the introduction of new and extremely complicated factors into the already complicated chemistry of the nitrogen compounds.

SCAVENGERS OF THE SEA. — Our British *confrères* continue to be agitated over the "typhoid oyster," and the columns of their lay and professional press are flooded with communications on the subject. The effect has been to injure the oyster trade very seriously, and all manner of suggestions are made as to the future regulation of this industry. It is not quite clear, however, that what an Ann Arbor professor calls these "scavengers of the sea" are really responsible *per se* for the manifold ills attributed to them. That an oyster shell may hold typhoid-polluted water is probably true; so also may a glass vessel. Of themselves, oysters have been proved to be destructive of pathogenic bacteria. Mrs. Percy Frankland furnishes a note to *Nature* recalling some of the experiments of her husband, the professor, as well as those of De Giaxa, on this subject. In the greater bulk of experiments made with oysters and some varieties of mussels replaced in sea water after inoculation through a hole in the shell, which was afterwards sealed up, the pathogenic microbes entirely disappeared in six hours; in only two instances were they detected in small numbers at the end of twenty-four hours, and in no case were they identified after forty-eight hours. It is the transplanting of oysters to sewage-contaminated waters or their storage where such contamination ensues, which is responsible for the recent attacks on the good name and fame of these succulent morsels. — *Journal of the American Medical Association.*

DEATH IN CONSEQUENCE OF AN URETHRAL INJECTION OF COCAINE. — In the *Centralblatt für Chirurgie* of March 10th, is an abstract of an account published in *La France Médicale* of a case of sudden death following the injection of six drachms of a five-per-cent. solution of cocaine into the urethra. At the autopsy the urethral mucous membrane was found intact, and there was pronounced arterio-sclerosis. The safety with which cocaine solutions of low strength and in small quantities may be used in minor surgery, brings with it the danger that the drug may be inadvertently employed in a dangerous strength and quantity. A dose as large as that reported to have caused death in this case is never necessary to secure the local effect of this valuable drug, so that it would seem that in a moment of excitement or inadvertence the piston of the syringe had been pushed beyond the point intended. A syringe of a capacity of six drachms should under no circumstances be used in the employment of cocaine solutions of the strength of five per cent. The weaker the solutions, the larger the syringe which it is safe to employ. Operations such as gastrostomy or herniotomy have been repeatedly performed with a drachm or less of a one-per-cent. solution as a local anesthetic. In the use of cocaine for urethral anesthesia, a few drops of a three-per-cent. solution may be made perfectly effective by very gradually pushing the piston of an Ultzmann syringe as its beak is withdrawn slowly through the urethra from the membranous portion. This is certainly a much safer method than squirting in from a large syringe, four or five drachms of a solution a good part of which may perhaps pass the triangular ligament, enter the bladder and be rapidly absorbed.

## BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, April 17, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 36, scarlet fever 26, measles 168, typhoid fever 8.

THE BACTERIOLOGICAL DIAGNOSIS OF DIPHTHERIA. — The health officer of Stamford, Conn., offers to make bacteriological examinations without expense in cases of suspected diphtheria in that city. Stamford is thus the second city in Connecticut to take this step, Hartford having been the first.

THE REGULATION OF MEDICAL PRACTICE IN MAINE. — An Act to regulate the Practice of Medicine and Surgery has been passed by the Maine Legislature. The bill received the approval and support of the Maine Academy of Medicine, and its passage was largely due to the character and influence of prominent members of the Academy. In the judgment of the *Journal of Medicine and Science*, the organ of the

Academy, the bill is not an ideal one, but is a better one than the first passed by most States and Territories. The passage of this law alone is a most successful result of organized action on the part of medical men; and the Maine Academy may well be proud of such marked success so early in its career. The agitation for a medical practice law was begun in the first number of the *Journal of Medicine and Science*, appearing in December, 1894, and noticed in our own editorial on December 20th. As to the securing of an ideal registration law, the Academy must have an exalted opinion of the Maine Legislature to even dream of the possibility of such a thing; which unless the Maine Legislature is far superior to that of other States in the Union is hardly to be expected at present.

NEW YORK.

School-House Janitors and Contagious Diseases. — A controversy has arisen between the Health Board and the Board of Education over a case of measles occurring in the family of the janitor of a public grammar school in East 35th Street. In consequence of this the school-house was closed by order of the Board of Health, and nearly two thousand children have been forced to abandon their studies until the Board decides that it is safe to allow them to return to the building. It is a rule of the Board of Education that janitors shall reside in the schools and provisions are always made for apartments for their families in the buildings. In this way a considerable saving in wages is effected, as a deduction is made for rent, heat, fuel and light. On this account the Board has strenuously opposed the efforts which the Board of Health has made from time to time to have the janitors accommodated in quarters outside the school buildings. Quite a number of times during the past few years it has been found necessary to close school-houses for weeks at a time on account of the presence of contagious disease in janitors' families, and the occurrence of the present case has encouraged President Wilson of the Health Board to press the matter to an issue. He has communicated with Mayor Strong in regard to it, and the latter has written a letter in which he fully agrees with the stand taken by the Board of Health that janitors should be required to live outside the schools.

A New Medical Society. — A large number of physicians in the lower part of the city have organized a new society to be known as the Eastern Medical Society. In its platform the society denounces organizations giving free aid to the poor but which treat all applicants, dispensary physicians for allowing prescriptions of pay patients to be compounded at dispensaries, and physicians who give advice at drug stores.

"Health and Happiness." — The Charity Organization Society has issued a placard for distribution among the poorer classes which contains a considerable amount of useful information. It is headed "Health and Happiness," and is made attractive by pictures. Injunctions are given as to personal cleanliness and the importance of clean clothes, clean houses, and fresh air is dwelt upon. A diagram shows the relative value of staple foods and the time required to digest the different articles, and recipes are furnished for preparing a large number of cheap and nutritious dishes. Information is also given as to what should be done at once in cases of wounds, bruises, burns and scalds; and finally a number of maxims hinting how to be healthy and happy are printed.

Another Brooklyn Bridge Jumper. — On April 13th a man by the name of James Duffy leaped from the Brooklyn Bridge into the East River, and was killed. It is believed that he made the leap with suicidal intent, rather than to acquire fame as a bridge-jumper. Since the bridge was built seventeen persons in all have jumped from it, and of these ten were unhurt or escaped with comparatively slight injuries, while seven lost their lives.

## Miscellany.

### IN ACTIVE PRACTICE AT THE AGE OF ONE HUNDRED AND TWO.

The London *Daily Telegraph* for March 28, 1895, publishes the following interesting account of a most remarkable character:

"'I was born in 1793, and since then I have not been ill a single minute.' Such is the very satisfactory account of himself just given by Dr. de Bossy, the *doyen* of the French physicians, who is still in practice at Havre, hale and hearty as ever. He says that he has never followed any special *régime*, and that, in fact he is opposed to anything of the kind. Summer and winter he gets up at seven o'clock, and as soon as he is dressed he starts off on his rounds, generally on foot, but now and then in a tram-car, when there is a good deal of mud. He does not restrict himself to any particular dishes, but enjoys all. Coffee he has drunk all his life, and he has no objection to a glass of bitters, while as for tobacco, to borrow his own expression, 'that is another poison which I regularly absorb without being any the worse.' Then what is the secret of longevity, according to this veteran, who is still in excellent health? Moderation in all things, and he adds: 'I got the recipe from my father, who was one hundred and eight when he died. You perceive I have no infirmity.' All this he relates as if it were the simplest matter in the world, and within the reach of all, to become a centenarian. Dr. de Bossy's case is all the more remarkable inasmuch as he lived for some time in a tropical climate. He took his degree in 1818, went to England, and thence to India where he practised medicine, and then returned to Havre, where he has been busily at work for the past sixty-four years. He toiled for years in the East while epidemics, cholera included, were raging around him, but emerged scatheless from the ordeal. Nor, during the unwelcome visitation of cholera at Havre, in 1892, did Dr. de Bossy remain idle. On the contrary, he tended the sick in poor and crowded districts with such devotion that he was presented with a medal by the Government. He has two sons, the one settled at Havre

and the other at Rouen, the elder being sixty-eight years of age, and both, as he hopes, in a fair way to emulate the example, set them by their father and grandfather."

## Correspondence.

### A REPLY TO DR. ALBERT LEFFINGWELL.

1925 Chestnut St., Philadelphia.
April 16, 1895.

Mr. Editor: It does not seem to me necessary to make reply to the one-column letter of Dr. Arthur H. Nichols in the Journal of April 11th. I do not believe, nor have I in any way intimated, that the New England physicians are in any way different from physicians in other parts of the earth. Dr. Nichols is right in believing that my position is that the general laws prohibiting cruelty to animals, are all that are needed for the proper restriction of vivisection; and in this belief I am confirmed by the letter of Dr. Albert Leffingwell, which follows that of Dr. Nichols. If a gentleman of his culture and general intelligence cannot perceive that his words are an absolute misstatement, when the misstatement has been clearly pointed out, what is to be expected from those who are actually sunk in fanatical opposition?

It is hardly necessary for me to point out that unless I had quoted the whole of the circular he could have made charges of my quotation being garbled; and that I did not think it was necessary or essential to quote more than what seemed to me to have direct or necessary bearing upon the question. Pardon, however, if I re-quote, not in full, but what is necessary, referring to his letter for the rest of the paragraph. He says: "While State laws generally prohibit cruelty, yet in the great majority of cases there is *no law*, no college rule or regulation even, prohibiting the infliction upon animals," etc. This statement is certainly not true. The reason why I omitted and evaded the evidence on which it rests, to use the words of Dr. Leffingwell, is because the evidence is entirely out of court — foreign to the subject; in other words, no evidence at all. Quoting Dr. Leffingwell, he says: "The proof of this statement rests upon replies made by different college presidents to letters of inquiry." Does not Dr. Leffingwell know that *college presidents* do not make *laws?* Laws, when the word is used in the English language, without qualification, means laws made by legislators. If Dr. Leffingwell had said, "college laws" he might or might not have been correct in his statement; but when he says "laws," and especially when in antithesis he further says, not even a *college* rule or regulation, he says what is not true. Is it not odd that he cannot perceive this? Surely this is an instance of the effect of a Dominant Idea worthy of going into a physiological text-book. The only defence of his statement would be not the one which he makes, but the quibble that the law does not prevent inflictions.

The answer to this is that no law prevents any crime, and that in ordinary language when we speak of a law passed to prevent crime we mean one passed for the purpose of prevention.

The matter between myself and Dr. Leffingwell is of no importance to anybody; certainly, at least, not to me, and I suppose not to him, but the class of people with whom he is associated, at least in our thoughts and in the practical results of his efforts, are the class of people with whom we in Pennsylvania have been for years contending for our very lives. Ten years ago I myself was inclined to favor some special laws in regard to vivisection; but experience has shown that these laws are wanted simply for the purpose of enabling the anti-vivisectionists to put spies into every laboratory, to question every experiment, and to perpetually drag the experimenter before magistrates and juries composed of the peculiar material which abounds in our larger cities.

The mental condition of Dr. Leffingwell shows how an honest man may be incapable of perceiving the truth; and when to this fact is added the certain fact that the spies put into the laboratories would be paid for the purpose of achieving a certain end, would be under the influence of the most intense fanaticism, and would in a large proportion of the cases at least be completely ignorant of the matter under judgment, it will be seen that the life of the physiologist under such circumstances would be not worth the living. At present the physiologist everywhere receives little or no reward for his labors for the good of mankind; is usually underpaid almost to the point of starvation; has in America no social reward or consideration, which to many men is worth more than money; lives in fact *a perpetual sacrifice* for the good of his fellow beings. Isn't it a pity, when the world is full of infinite misery, that men of intelligence should give their thoughts and time not to lessening the sufferings of the human race but to impeding the progress of those who would do this thing?

Thanking you for the courtesy of your columns,

I remain, yours truly,

H. C. Wood, M.D.

### THE INJECTION OF STIMULANTS INTO THE HEART-WALLS.

Middletown, Conn., April 15, 1895.

Mr. Editor: — I noticed in the Journal's last issue an account of cardiocentesis in an attempt to perform only paracentesis. The remarks that followed by Dr. Sloan, quoted from the *Edinburgh Medical Journal*, were particularly interesting, as they seemed to throw more light upon the therapeutic value of cardiac puncture and injections.

Some cases of interest along this line of cardiac stimulation, after all common means had failed, presented themselves to me while an interne in one of the New York City hospitals.

Within a few weeks of each other three cases of delirium tremens presented me an opportunity to try cardiac injections; all three being cases in which all stimulants, such as digitalis, strophanthus, nitro-glycerin, etc., had failed to ward off a fast-approaching cardiac paralysis.

On being called to the first case, as was then supposed for the last time, I found that hypodermic injections of stimulants would no longer revive the heart's feeble motion. It was thought probable that if stimulants could be injected directly into the heart-muscle the much needed stimulation could be obtained. Accordingly one-fifteenth of a grain of sulphate of strychnia was given by means of a long needle-syringe. The immediate result of its administration was to slow down the heart's action without changing its irregular rhythm. In fifteen or twenty minutes this too improved. After one more injection of one-twentieth of a grain in one hour, the heart was beating about one hundred per minute, and quite regularly. This case eventually recovered from the attack, and was discharged in five days. The case, although the history is somewhat meagre in details, showed a beneficial result from cardiac injections of stimulants. The immediate effect, the heart's improved action, seems to have been due first to the puncture and secondly to the fact that the drug sustained the heart until the alcoholic narcosis had lessened its hold upon the patient.

The second case was similar to the foregoing, but was not quite so severe and required only one injection.

In the third case the injections were withheld in deference to the wish of the visiting physician, who insisted upon the use of other cardiac stimulation until the patient's condition became very critical. The pulse was imperceptible at the wrist, and respiration was only noticeable at intervals of ten or fifteen seconds. At last the injection of ammonia was made into the heart-muscle, but no change followed this first administration and the second was given in eight or ten minutes. The patient died in a few minutes after the last injection. Probably this last case had become so moribund at the time of the injection that no remedy could have kept the patient alive.

Very truly yours,

L. Pierce Clark, M.D.

## METEOROLOGICAL RECORD,

For the week ending April 6th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A. M. | Relative humidity. 8.00 P. M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A. M. | Direction of wind. 8.00 P. M. | Velocity of wind. 8.00 A. M. | Velocity of wind. 8.00 P. M. | We'th'r.* 8.00 A. M. | We'th'r.* 8.00 P. M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S ..31 | 30.12 | 35 | 44 | 26 | 24 | 24 | 24 | N.W. | N.W. | 22 | 13 | C. | O. | |
| M.. 1 | 29.79 | 37 | 42 | 32 | 30 | 52 | 41 | W. | S.E. | 6 | 4 | O. | R. | |
| T.. 2 | 29.63 | 38 | 41 | 34 | 82 | 88 | 85 | N.E. | E. | 4 | 5 | O. | O. | |
| W.. 3 | 29.56 | 40 | 47 | 33 | 93 | 44 | 68 | N. | N.W. | 13 | 11 | N. | O. | .40 |
| T.. 4 | 29.90 | 37 | 44 | 30 | 55 | 50 | 52 | W. | W. | 14 | 8 | C. | C. | |
| F.. 5 | 30.18 | 40 | 50 | 31 | 39 | 40 | 40 | N.W. | N. | 12 | 10 | C. | C. | |
| S... 6 | 30.38 | 42 | 51 | 33 | 48 | 74 | 61 | N.W. | S.W. | 5 | 12 | C. | F. | |
| | 29.94 | | 45 | 31 | | | 53 | | | | | | | .40 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 6, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diarrheal Diseases. | Diphtheria and croup. | Scarlet fever. |
|---|---|---|---|---|---|---|---|---|
| New York | 1,956,000 | 873 | 346 | 12.21 | 22.66 | 1.65 | 4.29 | 2.53 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,437 | 494 | 134 | 10.20 | 19.60 | 1.20 | 6.00 | .20 |
| Brooklyn | 1,043,000 | 464 | 159 | 15.58 | 30.15 | 1.08 | 9.18 | 1.08 |
| St. Louis | 540,320 | — | — | — | — | — | — | — |
| Boston | 501,167 | 207 | 50 | 7.50 | 20.16 | — | 4.32 | — |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 104 | 34 | 5.76 | 30.72 | — | — | — |
| Cincinnati | 325,000 | 149 | 31 | 8.16 | 14.96 | 1.36 | 1.36 | — |
| Cleveland | 325,000 | 103 | 34 | 6.79 | — | — | .97 | 1.94 |
| Pittsburg | 272,000 | — | — | — | — | — | — | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 45 | 7 | 4.44 | 31.08 | 2.22 | — | — |
| Charleston | 65,165 | 36 | 12 | 8.34 | 8.34 | 2.78 | 5.56 | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 36 | 11 | 11.11 | 11.11 | — | — | — |
| Fall River | 92,233 | 28 | 17 | 17.85 | 21.42 | 10.71 | 3.57 | — |
| Lowell | 90,613 | 37 | 11 | 10.80 | 16.20 | 2.70 | 2.70 | — |
| Cambridge | 79,697 | 20 | 6 | 40.00 | 20.00 | — | 30.00 | — |
| Lynn | 63,123 | 20 | — | 20.00 | 5.00 | — | 5.00 | 10.00 |
| Springfield | 50,394 | 18 | 5 | 11.11 | 27.77 | — | — | — |
| Lawrence | 49,900 | 12 | 5 | — | 25.00 | — | — | — |
| New Bedford | 47,741 | 17 | 2 | — | 11.76 | — | — | — |
| Holyoke | 43,248 | — | — | — | — | — | — | — |
| Brockton | 39,929 | 9 | 1 | 1 | 22.22 | — | — | — |
| Salem | 33,155 | 8 | 1 | — | 25.00 | — | — | — |
| Haverhill | 32,925 | 12 | 5 | — | 8.33 | — | — | — |
| Malden | 30,209 | 12 | 4 | 8.33 | 25.00 | — | — | — |
| Chelsea | 29,806 | 13 | 5 | 61.52 | 15.38 | — | 15.38 | 7.69 |
| Fitchburg | 29,393 | 9 | 2 | 11.11 | 11.11 | 11.11 | — | — |
| Newton | 29,837 | 11 | 2 | — | 18.18 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 7 | 3 | 14.28 | — | — | — | 14.28 |
| Waltham | 12,058 | 6 | 1 | — | 16.66 | — | — | — |
| Quincy | 19,642 | 6 | 4 | — | 33.33 | — | — | — |
| Pittsfield | 18,802 | 6 | 0 | — | — | — | — | — |
| Everett | 16,585 | 5 | 2 | — | 60.00 | — | — | — |
| Northampton | 16,331 | 2 | 0 | — | — | — | — | — |
| Newburyport | 14,073 | 3 | 0 | — | 33.33 | — | — | — |
| Amesbury | 10,926 | 2 | 0 | — | — | — | — | — |

Deaths reported 2,870: under five years of age 920; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 304, acute lung diseases 594, consumption 313, diphtheria and croup 128, scarlet fever and diarrheal diseases each 37, measles 22, cerebro-spinal meningitis and whooping-cough each 19, typhoid fever 18, erysipelas 13, small-pox (Cincinnati) 6.

From measles New York 16, Brooklyn 2, Philadelphia, Washington Cincinnati and Providence 1 each. From cerebro-spinal meningitis Washington 5, New York, Worcester and Lynn 2 each. Philadelphia, Boston, Cleveland, Fall River, Lowell, Somerville, Malden and Chelsea 1 each. From whooping-cough New York and Brooklyn 7 each, Worcester 2, Philadelphia, Cambridge and Springfield 1 each. From typhoid fever Philadelphia 7, Cleveland 3, Brooklyn 2, New York, Boston, Cincinnati, Lowell, Lynn and Springfield 1 each. From erysipelas New York and Philadelphia 4 each, Boston 3, Brooklyn and Somerville 1 each. From malarial fever New York 4, Nashville 1.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 6, 1895, TO APRIL 12, 1895.

CAPTAIN REUBEN L. ROBERTSON, assistant surgeon, is granted leave of absence to, and including July 3, 1895, to which date his resignation has been accepted by the President to take effect.

Leave of absence for two months on surgeon's certificate of disability, is granted CAPTAIN JAMES E. PILCHER, assistant surgeon.

The following named officers will report in person to MAJOR CALVIN DEWITT, surgeon, President of the examining board appointed to meet at Fort Leavenworth, Kansas, on Wednesday, May 1, 1895, at such time as they may be required by the board, for examination as to their fitness for promotion, and upon conclusion of their examination will return to their proper stations: FIRST-LIEUT. THOMAS U. RAYMOND, assistant surgeon; FIRST-LIEUT. HENRY D. SNYDER, assistant surgeon; FIRST-LIEUT. ALLEN M. SMITH, assistant surgeon; FIRST-LIEUT. JOSEPH T. CLARKE, assistant surgeon.

CAPTAIN WILLIAM B. BANISTER, assistant surgeon, is relieved from duty at Fort McIntosh, Texas, and ordered to duty at Fort Omaha, Nebraska.

FIRST-LIEUT. FREDERICK P. REYNOLDS, assistant surgeon, is granted leave of absence for one month, to take effect upon his relief from duty at the U. S. Military Academy, West Point, New York.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 13, 1895.

G. MCC. PICKRELL, past-assistant surgeon, detailed from U. S. S. "Newark" and granted three months' leave.

A. W. DUNBAR, assistant surgeon, detached from U. S. R. S. "Vermont" and ordered to the U. S. S. "Newark."

HENRY LA MOTTE, assistant surgeon, detached from U. S. S. "Newark," ordered home and two months' leave.

C. P. BAGG, assistant surgeon, detached from U. S. N. Hospital, Mare Island, Cal., and to the U. S. S. "Monterey."

## SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.— The Annual Meeting will be held at 19 Boylston Place on Saturday, April 27th, at 8 P. M.

"Medical Advertisements in Newspapers," Dr. Walter Channing.

"Notes on Cases of Inflammation of and about the Vermiform Appendix," Dr. J. B. Blake.

Report of the Treasurer and Librarian. Election of Officers. Supper after the meeting.

H. L. SMITH, *Secretary*.

NEW HAMPSHIRE MEDICAL SOCIETY.— Members of the Society will take notice that the Executive Committee have changed the date of the Annual Meeting to Monday and Tuesday, June 3 and 4, 1895, and the programme will be issued accordingly.

The change is a necessity, as the time to which the Society adjourned will be Decoration day.

Per order of Executive Committee.

G. P. CONN, M.D., *Secretary*, Concord.

## APPOINTMENTS.

DRS. JOHN S. PHELPS and JOHN W. DEWES have been appointed district physicians to the Boston Dispensary.

## RECENT DEATHS.

JOSEPH HAGAR, M.D., M.M.S.S., died in East Marshfield, April 9, 1895, aged seventy-five years.

JOHN BLACKMER, M.D., died at Springfield, Mass., April 14th, aged sixty-six. He had seen active service during the war as a surgeon in both the Union army and navy. He was connected at times with various insane asylums, and at one time was in charge of the New Hampshire Asylum for the Insane. He was a prominent prohibitionist in New Hampshire, previous to his removal to Massachusetts in 1874. He had been Prohibitionist candidate for governor both of New Hampshire and Massachusetts.

# Original Articles.

## ROSE'S OPERATION FOR TRIGEMINAL NEURALGIA.[1]

BY N. P. DANDRIDGE, M.D.,
*Professor of Surgery and Clinical Surgery, Miami Medical College, Cincinnati, O.*

I MAY very properly introduce the following discussion on the results obtained by the removal of the Gasserian ganglion in cases of inveterate neuralgia of the branches of the fifth nerve, by the recital of a case in which Rose's method was employed, during March, 1894.

The patient, a German, was first sent to me some nine or ten years ago, on account of a severe and persistent neuralgia which involved the region supplied by the second branch. The man was engaged in a bristle factory, and the locality in which he lived rendered a malarial origin for his trouble not unlikely. His disease, however, was not in any way controlled by the long-continued use of quinine. He was a free drinker of both spirits and beer, and his indulgence had been unusually free at the time he was first seen. His age was forty-five.

He was sent to a dentist, but derived no benefit from his treatment. The infraorbital nerve was then removed. The infraorbital foramen was exposed, and the canal traced back on the floor of the orbit as far as possible, and opened, the nerve cut through, and the section pulled out of the foramen, and the terminal filaments removed. The antrum was not opened. After the operation the man became unruly, continued the use of stimulants, and developed an attack of delirium tremens, during which the bandages were displaced, and facial erysipelas ensued, which resulted in the destruction of a considerable part of the lower lid. This was subsequently repaired by a plastic operation by Dr. Sattler, not sufficiently, however, to fully protect the eye. The result of the removal of the nerve was extremely satisfactory, and there was complete immunity from pain for two years. It then returned in the region of the frontal. The supraorbital foramen was exposed, and as much of this nerve as possible removed. Complete relief followed for three months, and then returned, the pain, however, not being continuous, so that the man was able to keep on at his work. In the early part of March, 1894, he again presented himself, suffering most intense paroxysms of pain. These paroxysms were brought on when he attempted to speak or swallow, and on account of their severity a satisfactory examination of the mouth was impossible. This condition had now lasted some weeks, and involved all three branches, but was most intense at a point about three inches above the right eye, and an inch from the middle line. No matter in what region of the face the pain would start, it would concentrate its greatest energy on this spot.

For several weeks attempts were made with increasing doses of aconitine and galvanism to control the pain, but without results. It was then determined to attack the Gasserian ganglion, and Rose's method was selected. The H-shaped incision advocated by Andrews was made, and the zygoma cut through with a saw after being drilled so as to be wired at the completion of the operation. Subsequently it was found that further room could be secured by cutting away the anterior part of the zygomatic arch with forceps. As wiring was thus made impossible, the portion of the bone turned down with the masseter was completely removed. The coronoid process with the attachment of the temporal muscle was then exposed, and after being drilled for subsequent wiring was cut through, and the separated portion turned up with the temporal. The lower jaw was now depressed with a mouth-gag, and some fat abundantly supplied with veins which bled freely, removed, and the external pterygoid brought into view. This was separated from the greater wing of the sphenoid partly by the knife and partly by a blunt instrument. During this part of the operation the internal maxillary came into view and was ligated; in spite of this, however, the hemorrhage continued very embarrassing, and was only controlled by pressure. After a tedious dissection, which was prolonged by want of proper illumination, the foramen ovale was finally reached; the blood welling up from the depths of the wound rendered the recognition of the opening most difficult. It was finally definitely located by passing a grooved director into it, and with this in place a trephine was applied so as just to reach the edge of the foramen, and a button of bone removed. The opening was enlarged with a chisel and the nerve lifted up on a hook and cut through with scissors within the foramen. The view of the ganglion was obscured by the constant oozing; it was broken up by a blunt hook in a somewhat haphazard manner. The second branch was not seen within the skull. It was, however, readily brought into view with Meckel's ganglion, as it crossed the spheno-maxillary fossa. The nerve was torn away as it enters the infraorbital canal, and was then traced back to the foramen rotundum and twisted off. The supraorbital notch was now exposed, and some fine nerve filaments traced up for an inch or more and removed. The coronoid process was wired, and the wound packed with gauze, the end of which was brought out to supply drainage, and the external wound closed.

The operation lasted two hours and the patient was much exhausted, but soon rallied. On the third day he had a paroxysm of pain exactly similar to those suffered before the operation, and of extreme severity. The greatest intensity was on the top of the head. The pain was controlled after a hypodermic of morphia, and did not return. During the second week a superficial ulcer developed on the cornea, but soon yielded to treatment. There was some suppuration during the healing process, and there still persists now, ten months after the operation, a small sinus which leads down to bare bone. His general improvement was rapid, and in a few weeks he gained twenty-five pounds. His condition, ten months after the operation, is as follows: There is marked atrophy of the muscles of mastication on the side operated on, and the depression in the region of the zygoma produces considerable deformity. There, of course, still exists the defect in the lower lid left from the sloughing after the first operation. Sensation is nowhere completely lost, but is most deficient below the infraorbital foramen and over the submental. Pressure with the finger in front of the ear produces sensation, though not a painful one, over the submental foramen, beneath the infraorbital foramen, and over the spot on the forehead which was the seat of greatest pain. The sense of hearing is almost

[1] Read before the Surgical Section of the Suffolk District Medical Society, February 6, 1895.

lost in the right ear. The sense of taste on the right side of the tongue is impaired. A solution of salt can be distinguished when placed near the tip, but a solution of sugar cannot be distinguished from pure water. The movement of the jaw is impaired. He is able to masticate his food, but does so almost entirely on the left side, all of the upper teeth and most of the lower ones on the right being lost. The man expresses himself as entirely satisfied with the result, and is now at work daily. His son informs me that he has again commenced the free use of stimulants.

In the performance of this operation the incision suggested by Rose, commencing "over the malar bone about half an inch below the external angular process of the frontal and carrying it along the zygoma and down in front of the ear, over the parotid region to the angle of the jaw, and then forward along the lower border of the horizontal ramus as far as the facial artery," is probably better than the H-shaped incision employed by Andrews. It is desirable to secure bony union in the process of repair for the separated portion of the zygoma, as the depression otherwise resulting leaves an unsightly deformity. Most operators have drilled the bone in such a way that both ends can be wired on completion of the operation. Stitching the edges of the fascia together is said, however, to have given equally good results. Rose at first wired the detached portion of the coronoid process, but has latterly removed this entirely from the temporal attachment. Atrophy of this muscle must occur from destruction of its nerve supply. The location, and exposure of the foramen ovale is the difficult part of the operation — indeed, Rose himself reports in his third case that "the pterygo maxillary fissure was mistaken for the foramen, and the mistake only discovered by the protrusion of the orbital fat through the trephine opening"; and he further states that "the part of the bone which one first reaches in the deepest part of the operation is well in front of the foramen."

There is a great difference in the prominence made by the pterygoid ridge in different skulls, and in the angle made by the portion of the greater wing of the sphenoid below the ridge, which enters into the zygomatic fossa and the temporal portion, above. The more prominent the ridge, and the more nearly the surface of bone below approaches a right angle to the part above, the more difficult will be the exposure of the foramen, and the more difficult the application of the trephine. During this stage of the operation, there is decided advantage in adopting Rose's suggestion to have a skull at hand for reference. According to Doyen, the best way to reach the foramen ovale is "to trace the sphenoidal ridge backward to the transverse root of the zygomatic arch. This latter leads directly to the eminentia articularis, in front of which the opening will be found." The inferior dental or gustatory nerve may be used as a guide to the foramen if exposed, as they pass downward under the lower border of the external pterygoid muscle. In my case they were not seen until the foramen was reached. The external pterygoid plate is a useful guide as pointed out by both Rose and Mixter: "The foramen lies usually a little behind and external to the base of the outer plate," but sometimes directly behind it.

Mixter has pointed out some variations in structure which are found in this region, and may have an important bearing on the operation. He has called attention to the fact[2] that the ligamentum pterygo spinosum may be ossified, and may divide the branches of the nerve, and in order to expose the foramen it may be necessary to chisel this bridge away. The insertion of a grooved director into the foramen before the trephine was applied rendered the exact application of this instrument much easier, so that its edge just touched the foramen. Any enlargement of the trephine opening that is needed may readily be made by a chisel, or cutting forceps.

This operation leaves much to be desired in the view obtained of the ganglion itself; at least, such was my experience, and the removal of the latter is a somewhat haphazard affair. The especial dangers, which theoretically should be great, of wounding the sinus or internal carotid, do not seem to have really occurred; indeed, greater and more alarming bleeding has taken place when the skull has been opened from the side and the ganglion brought plainly into view by lifting the tempero-sphenoidal lobe, than in Rose's operation. That the removal of the entire ganglion can, however, be accomplished, is shown by Rose's later cases and by the case reported by Doyen to the Seventh Congress of French Surgeons (Septième Congrès de Chirurgie, Paris, 1893). In evidence of the thoroughness of his operation, he presented the specimen removed, consisting of almost the entire ganglion, with fifteen millimetres of the superior maxillary, and thirty-five to forty millimetres of the lingual and inferior dental.

In attempting to compare Rose's operation with that of Hartley, it seems to be generally admitted that the latter gives a freer view of the ganglion and more certainty in its removal. Rose, in a personal communication, in speaking of a case in which he had performed Hartley's operation, said he was "pleased with it and intended where feasible to try it again." It limits, however, the removal of the branches to the portion within the skull — in Rose's operation the nerves can be removed up to the bony canals they enter; indeed, we are hardly in a position to say that the removal of the ganglion will afford greater immunity from recurrence than removal of the branches at their respective foramen at the base of the skull. In both operations hemorrhage is a prominent feature. It occurs, however, under quite different conditions. In the Hartley method it occurs after the skull is open, and the brain exposed, conditions which may lead to most serious results. Keen and Richardson have both had experiences showing the gravity of hemorrhage at this time, though in both cases the danger was happily averted — in the former's case only, however, by stuffing the wound with gauze and delaying the completion of the operation for several days. The wound of the posterior branch of the middle menigeal, in Keen's, before the completion of the section of bone, when it could be efficiently dealt with, would certainly seem to threaten serious consequences. In Rose's method the hemorrhage is simply embarrassing, and prolongs the operation. It can at any time be controlled by pressure, and must to a large extent have ceased before the skull is opened. In the former, the hemorrhage is at the end and dangerous part of the operation; in the second, at the beginning. Park has ligated the common carotid as a preliminary step so as to avoid serious hemorrhage. It would seem, in case this step was deemed necessary

[2] Boston Medical and Surgical Journal, August 13, 1891.

simply for the control of hemorrhage, that the ligature had better be placed around the external carotid. Such a ligature would be equally or more efficient to control the bleeding, and certainly involve much less danger. Ligature of the common carotid alone has, however, been practised, some eighteen successful cases being reported by Fowler; so that it may play a certain rôle beside the simple control of bleeding during the operation. It must certainly add to the chances of a fatal result, and Park's example does not seem to have been followed.

In regard to the results obtained by Rose's operation, Mr. Rose writes of his seven cases: "The results have been most gratifying. In only one instance, and that a highly neurotic woman, has there been any return of the pain, and then not at all severe. I have noticed a little stiffness in the lower jaw, easily tolerated in comparison with the terrible pain from which relief has been obtained."

Rose's cases are reported as being operated on in April, 1890; January, October and November, 1891; and January, 1892, so that three, four and five years must have now elapsed.

Parks reports his cases, operated on in July and October, 1892, as still in satisfactory condition. Andrews has had "two relapses after being cured for a good while"; and "one in which there is still complete relief after three years."

Parkhill reports recurrence after full relief for two years. The Hartley operation was then performed, the patient dying from exhaustion. This is the only case in which Hartley's operation has been performed after Rose's method, so far as I can learn. Eskridge reports one case without recurrence at the present time, nearly two years after the operation.

It may be well in this connection to recall the figures given by Fowler,[2] and the results of removal of the infraorbital nerve.

In twenty-six cases, in which the infraorbital nerve was removed together with Meckel's ganglion, there was complete relief for over three years in three cases, for over two years in six cases, and over one year in nine cases.

The average relief in all was one year and five and one-half months. In twenty-six cases of neurectomy of the infraorbital without removal of Meckel's ganglion, there was immunity for three years in five cases, over two years in three cases, and over one year in seven cases. The average was one year, three and one-half months.

In my own case ten months have now elapsed, relief being still complete. It is to be remembered in this case that immunity for two years was secured by removal of the infraorbital in the same subject.

No comparison can yet be made between the immunity secured by the different methods. The condition of the patient after successful operation is certainly more desirable when Hartley's method has been practised than after Rose's operation. In the latter the scar is more visible and there certainly is less chance of primary healing and some chance of necrosis. In addition there may result limited movement of the jaw. This is present in a large proportion of cases.

In my own case there has been almost complete loss of hearing on the side operated on. Rose has pointed out the danger of wounding the Eustachian tube when the trephine is employed in the manner first described by him. The centre pin was projected as far as possible and inserted into the foramen ovale, as a half-inch trephine might readily wound the tube, "as it passes in immediate contiguity to the ridge of bone, which forms the inner boundary both of the foramen ovale and spinosum." In my case the grooved director was inserted into the foramen and the trephine was applied external to it. Without injury to the tube, however, it is difficult to explain the subsequent deafness.

To the nineteen cases of Rose's operation reported by Keen, there are four additional ones to be added: (Eskridge two, Andrews one, Dandridge one), with one death, or twenty-three cases with three deaths. Andrews reports a case of death from brain disease one month after the operation; if this be charged to the operation we have twenty-three cases and four deaths.

To the Hartley operation there are seven additional cases: Richardson one, Keen two, Parkhill one, Rose one, and Tiffany two, with three deaths (Keen, Parkhill, Rose). This gives, with Keen's nineteen reported cases, twenty-six cases and five deaths.

The results thus far obtained in the intercranial operations do not justify the abandonment of the more superficial neurectomies in persistent neuralgia, but certainly justify the expectation that they will afford great and possibly permanent relief where recurrence takes place — a relief so great as to fully justify the danger they involve.

[2] Annals of Surgery, 1886.

## TWO CASES OF DERMOID CYST OF THE OVARY INVOLVING THE LARGE INTESTINE; REMOVAL OF CYSTS; RESECTION OF INTESTINE AND END-TO-END SUTURE; RECOVERY.[1]

BY MAURICE H. RICHARDSON, M.D.,
*Visiting Surgeon, Massachusetts General Hospital; Assistant Professor of Anatomy, Harvard Medical School.*

The two following cases of dermoid cyst of the ovary illustrate one of the most serious complications to be met with in the course of abdominal operations. In each the condition was entirely unexpected, and had to be remedied immediately. In one, the resources of a large hospital were at hand; in the other, those of my regular abdominal outfit.

In the first case, after the successful removal of a purulent Fallopian tube, a tumor as large as an orange was found wedged between the uterus and the rectum. This proved to be a dermoid cyst of the left ovary, which grew into the rectal wall and projected into and through its mucous surface. The portion thus attached was about two inches in diameter. The hair from the cyst grew into the lumen of the bowel. The tumor was removed by a clean dissection with scissors. The resulting opening in the bowel was situated deep in the pelvis, and involved the greater portion of the rectal wall.

With the patient in the Trendelenberg position, the opening was closed very satisfactorily by means of interrupted Lembert stitches. The distal and proximal ends were brought together and sutured with great difficulty by means of a long needle-holder.

In the second case the cyst filled the pelvis and involved in its growth the sigmoid flexure. The cyst was gangrenous, and in the necrotic process at least

[1] Read before the Obstetrical Society of Boston, February 9, 1893.

three inches of intestinal wall had been entirely destroyed. The portion of bowel attached to the mesentery was not affected. The tumor contained nothing but hair and fecal matter. Its separation from the bowel was easy, though complete resection was necessary. The whole portion affected by gangrene was removed, until a clean and healthy surface remained. The resulting edges were brought into careful approximation and held there by a single row of interrupted Lembert sutures of silk. Thorough search failed to show any further injury to the bowel.

In both cases provision was made against a possible fecal escape by sterile gauze drainage. In both, this provision proved the saving of the patient, for on the second or third day there was in each case an abundant fecal escape. The drainage, which of necessity followed, was brief. Recovery was rapid, and no interference with nutrition or with peristalsis resulted.

CASE I. Stella C., aged twenty-four, married, dressmaker, entered the Massachusetts General Hospital in July, 1894, with negative family history. She had had one child seven years ago. She has always had leucorrhea, which has been much worse during the last month. Three years ago the patient was attacked with excruciating pain in the right ovarian region, accompanied by excessive vomiting. This attack kept her in bed for nine months. Her catamenia were regular and normal during this time. July 8, 1894, ten days before her catamenia were due, she began to flow profusely. The flowing was accompanied by excruciating pain in the right iliac region, shooting down into the right leg. For the last two days the hemorrhage and pain have much diminished, while yesterday there was abundant discharge of pus from the vagina. Digestion was good, bowels regular. She was referred from the out-patient department by Dr. Townsend.

Examination showed a fairly developed but poorly nourished woman. The chest was normal. A mass, the size of an orange, could be felt on the right and partly behind the uterus, very sensitive to pressure through the vagina. Palpation of the abdomen showed no tumor or sensitiveness on either side. The uterus was in good position. The urine was normal.

Operation was performed by Dr. Richardson on July 21st, Dr. Cobb assisting. With the patient in the Trendelenberg position, an incision three inches long was made in the median line, below the umbilicus. On introducing the hand into the abdominal cavity, a sausage-shaped tumor could be felt in the right pelvis. This broke, on slight manipulation, and discharged a large amount of pus. The adhesions were carefully separated. The dilated and thickened tube was tied off with silk and removed. Another mass was then found behind the uterus and to the left of it, closely involving the sigmoid flexure and beginning of the rectum. Attempted enucleation showed that the tumor grew from the bowel wall, and was so intimately connected with it that separation without intestinal resection would be impossible. On trying to dissect the tumor from the intestine the cavity of the bowel was extensively opened. The abdomen was thereupon carefully protected with gauze, and the tumor removed by free resection of the intestine. Nearly the entire circumference of the gut was thus excised, the growth having invaded its entire structure and having projected into and through the mucous layer. The opening in the intestine was closed by interrupted silk sutures applied longitudinally. Drainage of gauze applied about a glass tube was used. The abdominal wound was partially closed by silkworm-gut sutures.

Recovery from the ether and from the shock was satisfactory. Four days after operation there was a foul and fecal discharge from the tube. This was fully controlled by drainage, and caused no harm. Five days later the tube was removed. She was discharged to the convalescent ward four weeks after the day of operation, with a granulating sinus remaining. She has been perfectly well ever since.

CASE II. Miss A. T., aged thirty-seven. Her father died of pneumonia at sixty-eight; mother at sixty-one from injuries. She had scarlet fever followed by ear trouble when three years old. She has been as well and strong as the average girl. Catamenia began at sixteen, and have been normal. She has always been troubled with constipation.

In January, 1894, about ten months before operation, she was seized with nausea and vomiting accompanied by fever. Her catamenia at this time were about three days late, but she began to flow before the pain started. The physician in attendance called it inflammation of the ovary. The pain lasted two days, and she was in bed five days. At the end of three weeks was as well as ever, with the exception of a slight discomfort in the right side.

On the 1st of April, four months from the first attack, after a movement of the bowels, severe pain came on in the right side of the abdomen, associated with nausea and vomiting. The pain was so severe that she was doubled up, with the legs flexed upon the abdomen. This attack lasted only twelve hours, when she was perfectly well again.

Four months later, on August 4th, she had a similar attack, with rise of temperature. The pain and tenderness extended over the abdomen and chest. This occurred at the time the catamenia were due. She began to flow three days later, when all the symptoms abated. She was up and about again in two weeks, but she was not as strong as before the attack. The bowels were very irregular, varying from severe constipation to excessive diarrhea. There was continual tenderness on the left side of the abdomen.

About September 9th, a week past her regular menstrual period, she had general abdominal pain, which kept her in bed until the 26th. Her bowels were very irregular, and she suffered much from general distention. Food caused almost constant nausea and distress. There was a slight rise of temperature all the time.

On September 26th she was brought to St. Margaret's from Hyannis.

Examination showed this patient to be rather slight, pale and delicate and much emaciated. Pulse 120, weak and easily compressible. The chest was negative. To the left of the median line, just below the umbilicus, a somewhat indefinite mass could be felt through the abdominal wall. Nothing was perceptible on the right side, although she complained of some soreness in the right ovarian region.

By vaginal examination the pelvic region varied from day to day. At one time nothing positively abnormal could be felt; at others a sense of indefinite boggy resistance. One day a tympanitic prominence above the pubes; at another time what suggested a distended bladder. Bimanually, under ether, an in-

definite mass could be felt between the fundus uteri and the abdominal wall.

For the next three weeks the patient was kept under close observation. Her chief symptom was pain in the thorax which seemed like dry pleurisy; there was also difficulty in digestion. After a week or ten days of careful dieting she was able to take abundant nourishment and stimulation. The bowels, which had previously been irregular, acted well by moderate use of laxative pills. The temperature did not rise more than a degree or a degree and a half, and on many days was normal. On the whole, she seemed to gain in her general condition, so that she could get up for part of the day. The pain in her right side entirely disappeared, but there was still to be felt at times a slight resistance to the left of the median line. After careful consideration an exploratory incision was deemed advisable.

October 16, 1894. A median incision was made below the umbilicus, the patient being in the Trendelenberg position. On opening the peritoneal cavity and introducing the hand, a mass was found everywhere adherent, situated partly behind and partly to the left of the uterus. The abdominal cavity was then carefully protected by gauze barriers, and a large, gangrenous, dermoid cyst, containing pus, hair and feces, was easily separated from its adhesions and removed. Several inches of the sigmoid flexure were found completely destroyed, nothing remaining but the attachment of the mesentery. The whole pelvic cavity was flushed with boiled water, and packed with gauze. The ragged ends of the sigmoid flexure were then drawn into the incision, carefully surrounded with gauze, trimmed with scissors and united by interrupted Lembert sutures. The coil was then replaced in the abdomen and the line of suture protected by gauze. The pelvis was drained by means of a glass tube. The abdominal incision was closed by silkworm-gut sutures.

After the operation she was given stimulative enemata every four hours. There was no nausea, and after twelve hours the patient was able to take small amounts of milk, lime-water and champagne. This was deemed necessary on account of her poor condition, though usually we do not give nourishment for the first twenty-four hours in abdominal cases.

For several days after the operation her condition was serious. The pulse remained at 120. The temperature gradually came down to normal. The glass tube was sucked out every six hours; the discharge, though serous at first, became fecal after twenty-four hours. The amount of discharge increased until the bowel emptied itself entirely through the wound.

On the third day the patient was taking a fair amount of nourishment and stimulant by mouth; enemata were therefore stopped, as they escaped through the abdominal opening. The temperature was still satisfactory, although her pulse varied around 120, and was very weak.

On the fifth day there was a slight improvement in her general condition, although the discharge of liquid fecal matter and gas from the abdominal opening was enormous. Up to this time absolutely nothing passed by rectum. This condition lasted for eleven days, her general condition improving a little, on the whole. She was able to take nourishment at frequent intervals, but after every feeding there seemed to be an increased amount of discharge from the abdominal opening. As far as the nurse could tell, there had been no discharge of gas by rectum, although the patient thought that two or three times a little had escaped that way.

Fecal movements by the rectum began a few days later, with great relief to the patient. From this time the amount of discharge from the abdominal opening steadily diminished; gas and feces passed freely by rectum. The patient's condition immediately improved, and she was able to sit up at the end of four weeks, with the abdominal wound entirely granulated.

On the second day after the operation it was observed that the patient was unable to extend her right hand. Examination showed complete musculo-spiral paralysis. During the operation, which lasted something over an hour, the patient's arms had been kept extended above her head.

For four weeks she had massage and electricity every day, with almost no improvement in her condition. At the end of three months the functions of the nerve were entirely restored.

Experiments on the cadaver, made by Dr. Walton and myself since this experience, shows that the nerves of the brachial plexus are brought up against the clavicle when the arms are fully extended over the head. Pressure upon these nerve trunks in this position, continued for an hour or more, seems to be sufficient to produce a temporary paralysis. It is best, therefore, to avoid extending the arms in the use of the Trendelenberg table.

December 27th. Up to ten days ago the patient had improved so that she was up all day, and had decided to take a journey to Chicago — her home. Without any premonitory symptoms she was taken one night with a chill and pain in the right side, with a temperature of 102°. The pain extended the next day over the entire abdomen, which was somewhat distended. In twenty-four hours she began to flow, and after four or five days the symptoms all abated. This attack of pain, her sister says, was similar to attacks that she had previous to the operation.

In the first case the question arose after operation whether, on the whole, it would not have been better to leave the tumor. Up to the time of my operation upon the second case, I was doubtful on this point. The close relation of the tumor to the bowel, with the increase in size sure to take place, rendered it certain that an operation would some day be necessary, and probable that sooner or later the cyst would get infected. In either event an operation would be imperative; in the former, under difficulties increased by the enlargement and probable adhesions, and in the latter complicated by septic conditions of the most alarming nature. On the other hand, no one could say positively that the dermoid would cause any trouble whatever. So serious an operation as that of opening the rectum would therefore be of doubtful justification, to say the least. In this particular instance the problem was solved by the unexpected and unintentional opening of the rectum. Nothing could be done except immediate enucleation, with such repair of the gut as we might be able to make. The second case throws much light on this important question. The bowel and the tumor, both intimately grown together, after a time became involved in total necrosis. Operation under these unfavorable conditions was clearly imperative. The successful issue is a matter of congratulation hardly to be expected in a second case. In fact, could we have foreseen that a frail woman was to have gangrene of a large

dermoid, with sloughing of the intestine for three inches, in which the rotten cyst was to act as the only barrier against a general fecal extravasation; that in the midst of so hopeless a condition her only chance lay in the removal of the tumor, resection and suture of the bowel, and relief of the existing peritonitis — could we have predicted in Case I a reasonable probability that such complication would arise, excision even of the portion of the bowel under the favorable conditions then present would have been deemed imperative.

The most important question in connection with the operation is that of drainage. The whole question of the method of applying sutures is of no importance if there is under all a possibility, even, of fecal extravasation. Such extravasation is admittedly possible, no matter how you sew; it is the great and the only risk to be feared after that of shock. Fecal extravasation must, therefore, be provided against. This can safely be done by means of gauze barriers, as I have described before, but the use of gauze must not lead to carelessness in making the joint. In the second case I was convinced that the sudden and excessive fecal discharge came, not through the line of sutures, but from an undiscovered spot of necrosis lower down. This disaster was effectually met by the method of drainage used.

With such a provision against accident we are not obliged to use any of the time-taking sutures; nor is a double row essential. On its own merits the interrupted Lembert stitch surpasses all other sutures. It is much more easily and rapidly applied, and it is quite as efficient. All other elements in the question aside, the saving of time is enough to place this method where it belongs — at the head of intestinal sutures. My opinion is based upon many abdominal operations, including twelve intestinal sutures after resection of the entire lumen. Eight have recovered. The fatal cases were (1) shock (woman of sixty-eight, with five days' gangrenous hernia, joint perfect); (2) shock after removal of large, solid abdominal tumor through which the transverse colon ran (joint tight); and (3) exhaustion after complete obstruction for several weeks (joint intact, no extravasation, no peritonitis); (4) shock after excision of four feet of gangrenous intestine. In all other cases, including a resection of ten inches for gangrenous hernia, a resection of the entire ileo-cecal coil, recovery followed.

## THE MURDER OF JAMES FARRAR.

### A Medico-Legal Report.[1]

by julian a. mead, m.d., of watertown, mass.

At half-past two in the morning of May 17, 1894, James Farrar, a farmer in the town of Lincoln, was awakened by a burglar who left the room as soon as he saw that Mr. Farrar was awake. Mr. Farrar arose immediately, dressed, and aroused a man who lived in his house, and then called up four other men who lived in the neighborhood.

In the meantime, a window in the kitchen of James Farrar's house was found open, and under this window was a peculiar foot-print pointing toward the house. Similar foot-prints, leading to and from the house, were found in the dusty road. For some time the peace of the town of Lincoln had been greatly disturbed by several burglaries, and James Farrar, who was a constable, considered it his duty to arrest the man who had broken into his house. Together with four companions, he followed these peculiar foot-prints now plain, now obscure, now leading up a side-road or into the yard of some house, but always onward toward the town of Weston. When they reached the Tower Hill station of the Massachusetts Central Railroad, which is about four miles from Mr. Farrar's house, they lost track of the peculiar foot-print that they had followed so persistently. At this point the party separated; James and his brother Edward went down the track, and the other three drove in the carriage around to the Cherry Brook railroad-crossing, which is some distance nearer Boston.

James and Edward, encouraged by finding a single foot-print on a sleeper, pressed steadily on down the track, and soon descried in the distance a moving object which, in the dim, uncertain light of dawn, seemed to be a man. This object at once disappeared around a curve in the track, and, when the Farrars reached the spot, was nowhere to be seen. They heard, however, at this time a noise like the breaking of branches in the woods at the side of the track. They went into the woods, and found a man standing at a freshly kindled fire. After some talk of the danger of building a fire in the woods, they put the fire out, and asked the man to come with them; but this he refused to do. James then said, "We intend you no harm, but you must come with us." The man, who subsequently gave his name as Barrett, pulled out a revolver, covered the Farrars, and said that he would not go with them. He then went toward the railroad track, pointing the revolver at them as they slowly followed him. On reaching the track, he started down towards the Cherry Brook crossing, keeping his pursuers all the time covered with his revolver. Barrett had not gone far when he saw the rest of the party, who had gone around the highway, coming up the tracks towards him. His retreat being cut off in this direction, he ran up the bank on the opposite side of the railroad. James Farrar rapidly followed him, and reached the bank soon after Barrett, whose retreat was cut off by a barbed-wire fence. Barrett, cornered and at bay, began to fire at James who reached him just as he fired the third shot. James sprang upon Barrett, and with the help of his brother Edward, soon had him on the ground. In a few minutes James said, "I am shot." He then fell over and died.

I found the body dressed in a leather jacket, woollen vest, two thin shirts, trousers and shoes. In about the centre of the breast of the leather jacket there was a black spot and a ragged hole. There was also a corresponding hole in the vest and shirts. At the back there was a hole in the shirts and vest, but none in the leather jacket. A bullet was found beneath the back of the vest and the leather jacket.

On the following day I made an autopsy, assisted by Drs. Wood and Jackson. There was a black spot in the middle of the front of the chest, two inches long and three inches wide; in the centre of this spot was a circular hole that measured one-quarter of an inch in diameter. This hole was an inch above a line drawn between the two nipples. The upper part of the left side of the face, and the left ear were sprinkled with black spots (powder-marks).

[1] Read before the Massachusetts Medico-Legal Society, February 6, 1895.

On dissection, a small hole, corresponding to the hole already described in the skin, was found in the sternum, just opposite to and near the upper border of the third rib on the left side. The under side of the sternum presented a ragged hole about an inch long pointing toward the left.

The left pleural cavity contained two litres of blood. The left lung was collapsed.

The path of the bullet could be traced by a dark blue line along the upper border of the upper lobe of the left lung, which was slightly wounded at one point. This line led to the left common carotid artery, which was found to be nicked.

There was a small irregular hole, from which blood was slowly oozing, on the left side of the back at a point three inches from the spinal column, and two and one-quarter inches above the spine of the left scapula.

All other organs were found normal.

The cause of death was hemorrhage from the left common carotid artery.

Barrett was indicted for murder by the grand jury, and was tried at Cambridge on the 19th of November, 1894. The trial was ably conducted by Attorney-General Knowlton and District-Attorney Wier for the Commonwealth, and Messrs. Goodrich and Selfridge for the defendant.

The defence tried to prove that Barrett did not know that he was being arrested for burglary, or that James Farrar was a constable, and that, therefore, he acted in self-defence. In order to strengthen this theory of self-defence, Barrett's lawyers tried to prove that he, instead of deliberately firing three shots, as testified to by eye-witnesses, fired but one shot, which was discharged more or less accidentally, after Farrar had seized Barrett. The defence maintained, therefore, that the ball entered the breast at an angle of forty-five degrees, and that the powder-marks on the left ear, and upper part of the left cheek were made by the powder that discharged the fatal bullet that entered the chest.

The medical experts for the Commonwealth, Dr. Draper and myself, testified that the bullet entered the breast at right angles, and was deflected in its course by the sternum. We were led to this conclusion by the fact that the hole in the skin and sternum was perfectly round. We also testified that the wound in the chest, and the powder-marks on the ear and cheek could not have been made by one and the same shot.

In support of our opinion, we undertook, by experiments, to reproduce as far as possible the position of the revolver when the shots were fired. Using Barrett's revolver and the same kind of cartridges, we fired, at different distances, into an old leather jacket which closely resembled that worn by Farrar on the morning of the murder, until we obtained a hole that corresponded to that in Farrar's jacket. To obtain this similarity in appearance it was necessary to hold the revolver about an inch from the jacket. It was conceded by the defence that this distance was correct.

We determined the distance at which the revolver was held, when the shot was fired that made the powder-marks on the ear and upper part of the cheek, by firing at pieces of blotting-paper, and noting the result. The first shot was fired at a distance of eight feet and left no powder-marks on the paper; at seven feet there were a few marks; at five and six feet the marks were somewhat increased but still quite scattering; at four feet the spots were quite thick; at three feet and a half they corresponded in appearance to those seen on the ear and cheek at the autopsy; at two feet they were very thick, and nearly covered the centre of the paper.

These experiments show conclusively, I think, that the revolver was between three and four feet from the face when the powder-marks were made. Is it possible to reproduce the picture more completely by showing how near the head the bullet passed? You will notice on the blotting-paper targets that the powder-marks are not visible to any extent at a distance of more than four inches from the hole made by the bullet. The bullet could not, therefore, have gone further from the head than four inches, and the number of powder-marks in Farrar's face show that it must have gone as near as three inches, and perhaps a little nearer.

These experiments demonstrate beyond a doubt that the revolver was not farther than an inch from the chest when the fatal shot was fired, and that it must have been three or four feet from the face when the powder-marks were made.

If it is not already clear that separate shots are necessary to produce these two appearances, we have further experiments to show the impossibility of one shot causing both the wound in the chest and the powder-marks.

Experiments were made to see how far from the wound, made by a revolver bullet, powder-marks are visible. At about an inch, the distance at which the wound in the chest was made, there was no spattering of powder, but simply a smutting around the hole; at three inches the result was much the same; at six inches the smutting was present, and some grains of powder were visible; at twelve inches the smutting began to disappear, and the powder-marks were abundant; at twenty-four inches the smutting entirely disappeared. In none of these experiments did the powder-marks appear to any extent beyond a distance of four inches from the bullet-hole. This held true in angular as well as in direct shots.

To substantiate their theory the defence must prove that powder-marks can be deposited one foot from the bullet-hole when the revolver is held about an inch from the wound.

These experiments prove that such spreading of powder is impossible with modern powder and revolvers.

There were, in this particular case, certain additional facts that make the ground of the defence untenable. You will have noticed that no mention has been made of powder-marks on the chin or neck or lower part of the cheek. There were none. Moreover, Professor Wood, after a careful microscopical examination of the jacket above the bullet-hole, was unable to find any grains of powder.

Drs. F. A. Harris and Charles Hibbert testified for the defence that the circular hole in the skin was no criterion whatever as to the angle at which the bullet entered the body. Dr. Hibbert admitted on cross-examination that if the hole in the sternum was circular, the bullet must have gone in straight. Dr. Harris was not asked his opinion on this point.

Both Drs. Harris and Hibbert were asked if a pistol-shot could make a circular wound at the junction of the third rib with the sternum, and at the same

time scatter powder-marks on the left ear. To this question they both answered, "Yes."

We now come to the consideration of the statement made by the defendant's medical experts, Drs. Harris and Hibbert, "that the condition of a bullet-wound in the skin, as to its being round or oval, is no criterion as to the angle at which the bullet was discharged."

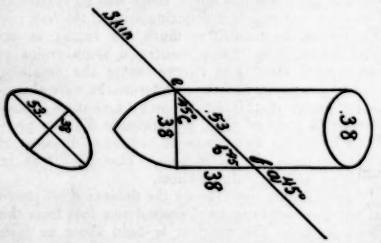
The additional circular hole in Farrar's sternum makes this point of little importance in this case, but the general question is well worth some special attention. Since the trial, Captain Gibson, of the Ordnance Department, U. S. A., and I have made some investigations on this subject.

The question is, Does a bullet entering the surface of the human body obliquely make an absolutely circular wound? It is not doubted that bullets fired point-blank and at a little distance may turn to such a degree as to make an oval or irregular wound.

In answer to the above question both the experts for the defence testified that a bullet fired obliquely often makes an absolutely circular opening. Dr. Hibbert said that this was true because the skin, being an elastic and contractile tissue, contracts after an injury, and assumes more or less the shape of the object which caused the wound.

We may admit the truth of his reason without subscribing to his conclusion; and, if it can be shown that the form of a bullet entering the skin at an angle is elliptical and not circular, he must necessarily change his conclusion.

Let us now see what is the shape of a bullet's cross-section as it enters the skin at an angle.




The figure represents a thirty-eight calibre bullet entering the skin at an angle of forty-five degrees.

The problem is to find the length of the line *e f*. We know that the angle *a* is forty-five degrees, and that the base of the right-angle triangle is thirty-eight, the diameter of the bullet. It follows then that the angles *a* and *b* are both forty-five degrees, and that the perpendicular is also thirty-eight. By extracting the square root of the sums of the squares of the other two sides, we find that the line *e f* is fifty-three. This shows that the form of the wound is an ellipse whose major axis is fifty-three, and minor axis is thirty-eight.

Now, if the skin contracts after the bullet enters, as it undoubtedly does, it is absurd to say that it contracts in only one diameter. It is more reasonable to suppose that there is a general contraction, and that the size, and not the form of the opening, is changed.

To see if this theory holds true in practice, we fired at an angle into various objects, such as chamois skin, cloth and paper, and found that the opening was always elliptical. As none of these things have the elastic principle of the skin, we chloroformed, and fired shots into, a dog. We found that while the elasticity of the skin made the ellipse somewhat less marked, the elliptical form, in different degrees, was present in all the angular shots, and absent in the direct shots. There was always a bevelling of the skin at that part of the wound nearest the point from which the shot was fired.

I have been unable to find much on this subject in the authorities. Taylor says that "the aperture is round only when the bullet strikes point-blank, or nearly so. If it should strike obliquely, the orifice will have more or less of an oval or valvular form."

Roswell Park, in Witthaus and Becker's new work, states the matter much the same as Taylor does.

Capt. Louis La Garde, of the Medical Department, U. S. A., conducted a series of experiments on the cadaver to determine the difference in destructive effects between the projectiles of large and small calibre from hand rifles. He writes me that bevelling in the track of the projectile would indicate that the piece had been held at an acute angle with the plane of the part hit; and an absolutely circular opening without bevelling would indicate that the projectile had entered when its line of flight was at right angles to the point hit.

It seems clear that the experts for the defence were not justified in asserting that the form of the entrance wound of the bullet is "absolutely no criterion" of the angle at which the shot was fired; or that an oblique shot often makes a perfectly circular opening.

Barrett was convicted of murder in the second degree, and was sentenced to the State Prison for life.

## Clinical Department.

### DIPHTHERIA, INTUBATION, NASAL-FEEDING, RECOVERY.

BY CHAS. B. STEVENS, A.M., M.D., WORCESTER, MASS.

It has been frequently said of late that, by the use of antitoxin in diphtheria, not only will the number of operative cases be diminished and the percentage of recoveries in operative cases increased; but also, the operation of intubation will more often than formerly prove to be adequate and preferable to tracheotomy, because the period of wearing the tube will be shortened.

The three principal causes of death in operative cases are broncho-pneumonia, sepsis, and extension of membrane. Antitoxin opposes especially the last two causes. To avoid broncho-pneumonia, which is caused largely by the inhalation of food through the tube, Dr. W. A. Morrison has practised feeding through a rubber tube passed through the nose into the stomach.

The following clinical case bears upon these questions:

Healthy child, two years old, began to be croupy March 3, 1895. No history of exposure.

March 6th, 1 P. M., it was found to have marked retraction of lower ribs, with some cyanosis. Pulse very weak and rapid, mouth and pharynx normal, no nasal discharge. Emetics, poultices, steam, calomel fumigation, and subcutaneous stimulation gave no relief. Therefore, at 3 P. M., I performed intubation, Dr. R. S. Wilder assisting. Relief was immediate and perfect. Antitoxin was not used because I sus-

pected the case to be pseudo-diphtheria, but a culture from the pharynx was taken immediately after the intubation.

Finding that attempts to swallow food caused severe coughing, I began the next morning to feed the child by a tube passed through the nares into the stomach. A No. 7 soft-rubber catheter was used, and four to six ounces of milk or egg-nog were given, four times a day, as long as the O'Dwyer tube was worn. There was no local treatment and but very little stimulation by brandy and nux vomica.

March 7th. Culture taken March 6th, examined by Dr. F. H. Baker, showed no Klebs-Löffler bacilli. Another culture was taken.

March 8th, Dr. Baker reported Klebs-Löffler bacilli in last culture; and twelve cubic centimetres of antitoxin (Gibier, 1–50,000) were injected in the lumbar region.

March 9th. O'Dwyer tube removed. Antitoxin, thirteen cubic centimetres, injected. Immediately after removal of tube the respiration became somewhat labored, but after one hour began to improve.

Convalescence was uninterrupted. The temperature, which had been between 99.5° and 101°, reached normal March 15th, when the throat was free from the Klebs-Löffler bacilli.

The temperature rose one or two degrees after each injection of antitoxin, and a peculiar restlessness came on, lasting one hour. No cutaneous eruptions appeared at any time. No albuminuria.

## A QUICK METHOD FOR THE FILTRATION OF A SMALL QUANTITY OF URINE.

BY LOUIS FAUGERES BISHOP, A.M., M.D., NEW YORK.

For a very long time it has been a problem to know how, with the apparatus usually at hand, to obtain quickly and easily a small quantity of clear urine from a cloudy specimen in order to make the usual test for albumin.

The following plan which has proved extremely easy and satisfactory in my own case will, I think, be found equally so in the hands of others: A small quantity of the cloudy urine is placed in a test-tube, the mouth of the test-tube plugged with cotton with a moderate degree of firmness. A second test-tube is placed with its mouth to the first. The position of the tubes is now reversed so that the one with the urine is bottom upward. The upper tube is now carefully and gently heated over the flame of a Bunsen burner or alcohol flame, and the expansion of the air above the urine immediately forces it through the cotton plug, and the filtered urine collects in the lower tube. In this we imitate to a degree the rapid-filtering apparatus of laboratories, but use pressure above the fluid to be filtered instead of an air-exhaust below.

Instruction in Tropical Diseases. — Dr. Patrick Manson has been appointed Lecturer on Tropical Diseases in St. George's Hospital Medical School, London. He will give a course of twenty lectures on the principal diseases peculiar to the tropics and Eastern Asia, beginning early in June. The lectures will be especially adapted to the needs of medical men preparing for tropical or Eastern service, and the admission to them will not be limited to the students of St. George's.

# Medical Progress.

## RECENT PROGRESS IN THORACIC DISEASE.

BY GEORGE G. SEARS, M.D.

### SERUM THERAPY IN PNEUMONIA.

The great interest which has been recently excited in the treatment of diphtheria by antitoxin renders the following summary of the results obtained by similar treatment in pneumonia[1] of special interest.

F. and G. Klemperer have treated twelve cases of the latter disease with the serum of rabbits which had been rendered immune, a dose of five to ten cubic centimetres being injected under the skin of the gluteal region. In five of the cases crisis undoubtedly resulted from the natural evolution of the disease; but in each of the other seven a drop in the temperature and a diminution in the frequency of the pulse and respirations followed the injection. According to these observers there was no question but what the disease was rendered more benign. In eight other cases they injected virulent cultures, which had been exposed to a temperature of 60° C., with very satisfactory results, a gradual fall of temperature beginning twelve to twenty-four hours after the injection. If it rose again, as occasionally happened, a second injection was made. They have also made inoculations with serum taken from a patient immediately after the crisis, and found that the reduction of temperature thus produced was often the beginning of complete defervescence.

Foa and Carbon have seen pneumonia arrested on the fourth day by injections of serum from a vaccinated rabbit, while Foa and Scolia in ten cases used the serum of rabbits which had been rendered refractory to the disease, some of the patients receiving as many as three injections. In four of the cases the crisis seemed to have been hastened.

Janson has also seen this mode of treatment produce early defervescence.

Lava in ten cases where he used the blood-serum and visceral extracts of animals who had been ill with pneumonia was unable to observe any marked immediate influence on the fever, but the temperature curve as a whole was not so high and the frequency of the pulse and the respiration was diminished, while convalescence was rapid and no complications ensued. No local reaction, either immediately or later, followed the injections in any case.

### THE HEREDITARY TRANSMISSION OF TUBERCULOSIS.

The possibility of the direct transmission of tuberculosis from mother to fetus has lately been proved by the occurrence of several positive instances, not only in animals but also in man. Gärtner[2] collected seven undoubted cases of the latter from the literature, beside others which were very probable, and was able to demonstrate experimentally that in pregnant animals with pulmonary consumption the fetus is not so rarely infected with the bacilli. Lehmann[3] on careful examination of three placentas from tubercular patients found characteristic lesions in two, one being from a case of miliary tuberculosis, and the other from a case of chronic laryngeal and pulmonary consumption, both the fetal and maternal parts of the placenta being af-

[1] L'Union Médicale, December 8, 1894.
[2] Zeitschrift f. Hygiene, 1893, Bd. xiii.
[3] Berl. klin. Woch., June 25, 1894.

fected in the latter instance. No typical lesions were found on autopsy of either child but from the ease with which bacilli could be transmitted from one fetal structure like the chorion to another, the glands or bones, for example, the possibility of congenital tuberculosis being more common than is usually accepted, is suggested. He considers that more diligent search would have demonstrated their presence in many cases where they were not found, since only the most careful examination prevents their being overlooked.

Schmorl and Kockel[4] report three similar cases, in two of which the patients died during pregnancy from miliary tuberculosis and in the third from chronic laryngeal and pulmonary consumption. In all these bacilli were found in both the maternal and fetal portions of the placenta, but only in one, a case of miliary tuberculosis, could they be found in the body of the fetus, and then only by the microscope. In cases of miliary tubercle the bacilli must be equally distributed by the blood to all organs and the only explanation of their being found in less numbers in the placenta than elsewhere, as occurred in these cases, is to suppose that the placenta is more resistant than other organs to their invasion. They think that the reason why so few bacilli reached the fetal circulation is found in the changes occurring in the vessels of the tuberculous villi, which effect their closure by the production of an overgrowth of endothelium and the formation of hyaline thrombi, and thus form a partial barrier to the spread of the bacilli.

### A CASE OF EXTREME CARDIAC DISPLACEMENT.[5]

Heyse describes in great detail the case of a woman, forty-six years old, in whom the heart was displaced so far backwards and to the left that the apex beat was plainly seen in the ninth intercostal space under the angle of the scapula. The area of cardiac dulness was found on the left side behind, immediately above that caused by the liver and spleen, while in its usual place the percussion note was vesicular. Since all other causes could be excluded he reached the conclusion that such extreme displacement could only be due to a fetal arrest of development of the lower lobe of the left lung, and quotes cases from literature in support of this etiology.

### THE ETIOLOGY AND PATHOGENESIS OF CARDIAC HYPERTROPRY IN DISEASE OF THE KIDNEYS.[6]

Since the explanations given of the coexistence of some forms of kidney disease with cardiac hypertrophy have thus far been most inharmonious, De Dominicis has tried whether by experiment any light could be thrown on a difficult subject. He found that ligation of both renal arteries caused death in dogs just as quickly as did removal of both kidneys. Next, the renal artery on one side only was tied, and in twenty successive experiments it was found that for three or four months the animals, if well tended, remained in good health, but after that time they grew thin without presenting any morbid signs in any particular organ. The urine showed the following changes: in the first five days after the ligature there was slight albuminuria which entirely passed away, while the solids in the urine were diminished in amount, especially the uric acid, but no casts were found. For a day or two the amount of urine was diminished but after that there was polyuria. With respect to the heart no increase of rate or force could be detected, either by palpation or by the cardiograph. Microscopic examination of the kidneys of some of the animals killed twenty-five to twenty-seven days after showed changes in the kidney, whose artery had been ligatured, due to degeneration of epithelium and interstitial nephritis, the latter changes being present also in the untouched kidney. Reviewing the experimental and the clinical evidence the author concludes, first, that idiopathic hypertrophy of the heart occurs often enough without any kidney lesion; and, secondly, that serious and extensive changes may be induced experimentally in the kidneys without any functional disturbance of the heart, and without even giving rise to the general condition of Bright's disease. When cardiac hypertrophy and renal disease exist together they must be regarded as common effects of a chemical poisoning of the blood.

### DIAGNOSIS OF TRICUSPID INSUFFICIENCY.[7]

Hamburger describes a case of tricuspid insufficiency, completed by autopsy, which was under observation a number of weeks, yet auscultation revealed no deviation from the normal sounds. Hypertrophy of the right ventricle and other cardiac signs usual in this condition were present in but slight degree, nevertheless the diagnosis was correctly made from the presence of a strong venous pulse, according to Bamberger the only sure sign of this lesion. Hamburger emphasizes the point because most text-books fail to make it sufficiently plain that serious functional disturbances of the valve are not always accompanied by murmurs. He agrees with Dieulafoi in ascribing their absence to so high a grade of dilatation of the orifice that fluid veins are not formed.

### RELATIVE INSUFFICIENCY OF THE PULMONARY VALVES IN MITRAL STENOSIS.[8]

Pawinski says that he has been unable to find in literature any notice of a relative insufficiency of the pulmonary valves, which was dependent on mitral stenosis and not on sclerotic changes in the intima, and yet in his experience this condition is not so very unusual. He has been able on several occasions to demonstrate the presence in cases of mitral stenosis of a diastolic murmur at the left edge of the sternum at the level of the third or fourth costal cartilage, which can also be heard, though less distinctly, in the parasternal line and in the second intercostal space. As a rule it is propagated over the upper left half of the thorax but cannot be heard beyond the right side of the sternum, nor in the so-called aortic area. It was most often found in young, well-nourished individuals, especially women, but was by no means a constant phenomenon when found, often being present for several days or weeks at a time and then disappearing for a longer or shorter time. Favoring circumstances for its production or intensification are a rise of pressure in the pulmonary circulation in consequence of some affection of the lungs or pleura. Clinically it was found that under the influence of digitalis this murmur became at first more audible, but later, as the pulse became slower, it became less distinct and finally disappeared, a markedly accentuated second sound alone

[4] Beitrage z. path. Anat., Bd. xvi, H. ii.
[5] Centrblt. f. innere Med., 1894, No. 5.
[6] Wien. med. Woch., November 17, 1894, et. seq.; Practitioner, January, 1895.
[7] Deut. med. Woch., 1894, No. 22.
[8] Deut. Arch. f. klin. Med., 1894, Bd. liii, p. 519.

remaining. The diagnosis between a diastolic murmur arising in this way and that due to uncomplicated mitral stenosis, aortic insufficiency, tricuspid stenosis or a sound produced in the vena cava superior or inferior would depend upon its character, seat of maximum intensity, line of propagation, the absence of vascular signs and the presence of an accentuated pulmonic second sound. Pawinski was unable to determine any modification of the sound from inspiration or expiration. The sign is of value in prognosis since it shows a hypertrophied and powerful right ventricle on which the mitral lesion is dependent for compensation, and in treatment since it shows excessive pressure in the lesser circuit and indicates measures of relief for that condition.

### CYCLING AS A CAUSE OF HEART DISEASE.[9]

Herschell says that the reason why cycling may become more injurious than some other forms of exercise is the fact that the rider takes much more exercise than he is aware of and is very frequently tempted to overtax his powers. This stricture is applicable not only to those who ride for prizes, especially in that suicidal form of racing known as hill-climbing contests, but to the thousands of every-day cyclists who strain themselves in trying to make a given distance within a specified time, or to keep up with the rest of the party, or in using a gear much too high for their strength.

The effects upon the heart of the strain of excessive cycling may be divided into four groups: First, simple hypertrophy, which may be looked upon as a compensating effort of nature to enable the work to be performed, and which may either terminate in recovery or lead to valvular disease and disease of the aorta or to degeneration of the cardiac muscle. Second, acute dilatation of the heart, especially in those who have passed their early youth, ending either in recovery, if the cause be removed, or in more or less sudden death, or in the production of valvular disease. Third, chronic valvular disease, due to one or the other of the first two groups, the result being due either to stretching of the aortic ring by pouching of the aorta and the production of regurgitation, or to the actual giving way of a valve or to sclerotic changes in the valves. In any of these cases the disease will follow the usual course of valvular mischief produced by other causes. Fourth, functional derangements of the heart, many of which are slight and promptly recover, others are similar to those chronic cases of tachycardia, which Da Costa observed among the men engaged in our Civil War and to which he applied the term of "irritable heart." The chief symptoms of this condition which he has observed are palpitation and intermittency of the heart's action, shortness of breath, a sensation of sinking at the epigastrium and the occasional occurrence of angina-like symptoms.

As an offset to these possible evils of excessive cycling we have the undoubted fact that in moderation and under proper conditions it is one of our most potent remedial measures in establishing that compensatory hypertrophy, which alone can enable the victims of valvular cardiac disease to live in comfort and happiness.

In considering the precautions to be taken to obviate the dangers of the sport, he lays stress upon the following points: the use of a low gear, the upright position in riding, adequate food when riding and the avoidance of muscle poisons, such as beef-tea, as well as preparations of kola and coca. Perhaps the most important point of all is that the cyclist should on no account continue riding after he has begun to feel short of breath or when there is the slightest sensation of uneasiness in the chest.

The subject has also been considered by Sir B. W. Richardson,[10] who arrives at essentially the same conclusions, but in addition says that it is often more important to consider the peripheral condition of the circulation than the central in advising patients on the subject of cycling, since enfeebled or worn-out arteries may be more dangerous than the feeble heart. The same remark would also apply to cases where there is a local arterial injury, such as aneurism. Venous enlargement, on the other hand, seems rather to be benefited than injured by cycling, conditions marked by sluggish circulation through the veins being often greatly relieved by the exercise.

In commenting on the paper, Dr. Ernest Sansom said that he could recall but one instance of rapid heart in a cyclist and had never met with a case of irregular heart among them, and thought that the influence of cycling was decidedly more in the direction of good than of harm. As a therapeutic agent in the treatment of actually existing heart disease it was quite in accord with the teaching of Professor Hirst of Munich, but in his opinion it had many advantages over climbing, which the latter extolled.

### INDURATIVE MEDIASTINO-PERICARDITIS.[11]

Harris has collected from literature nineteen cases of this condition, completed by autopsies, and has added three others hitherto unpublished. From these cases it would appear that it is not more common in children than in adults, since only nine occurred in persons under eighteen years of age, while thirteen, only two of whom had reached thirty, were over it. It also seems that males are more frequently affected than females since the former predominated in the proportion of seventeen to five. In some of the cases there is a history of an acute illness, usually an acute chest affection, ante-dating the time at which the symptoms of mediastino-pericarditis manifested themselves, which in some instances was clearly an attack of acute pericarditis, but in others the only acute illness in the previous history of the patient was one of the acute fevers, most commonly scarlatina or measles, while in still others the onset was perfectly insidious. Trauma does not appear to have commonly played a part nor does tubercle seem a frequent associate.

The symptoms are chiefly those of failing cardiac compensation, to which are added a pulsus paradoxus and inspiratory swelling of the veins of the neck, but all symptoms are not necessarily present in every case. Dropsy may either be general or confined to the abdominal cavity with little or no anasarca of the lower limbs. At first the patients are able to lie down fairly comfortably in bed but later orthopnea may develop. The position, however, described by Jaccoud as important in diagnosis, in which the patient sits up in bed with the trunk markedly bent forward in consequence of the increased dyspnea and intra-thoracic pain when the erect or still more the recumbent posture is assumed, must be very exceptional.

The physical signs show an increase in the area of

[9] Lancet, March 2, 1895.

[10] Quoted in New York Medical Record, February 16, 1895.

[11] Medical Chronicle, October, 1894, to January, 1895, inc.

cardiac dulness, which may extend as high as the first rib, especially when the heart is pushed up by fluid in the abdominal cavity; but this extensive increase is much more likely to be due to the coincident cardiac enlargement than to the mediastinitis, though in some cases enlarged caseous glands together with the fibrous tissue in the mediastinum may contribute to its production.

The occurrence of ascites in some cases without noteworthy anasarca may possibly result from a chronic inflammation of the liver resulting from chronic passive congestion, or it may be due to a chronic peritonitis, arising either as an independent affection or as a result of passive congestion. Regarding the pulsus paradoxus, on which so much stress has been laid in diagnosis, it has been observed not only in mediastinopericarditis, but in different forms of pericarditis without mediastinitis, in cases of large pleuritic effusion, in great cardiac weakness, and in convalescence from long standing febrile affections as well as in a case of mitral incompetence with dilatation of the heart, in cases of great dyspnea from narrowing of the air passages and in cases of mediastinal tumor, so that it can no longer be considered as pathognomonic, yet its detection in any case should direct the attention to the possible presence of the affection. Engorgement of the veins of the neck is common, as in cases of marked dilatation of the right ventricle and the engorged veins may show marked pulsations, but an inspiratory distention of the right external jugular vein may or may not be present, so that its absence does not necessarily invalidate the diagnosis. It has also been observed in an uncomplicated case of pericarditis exudativa.

The duration of the affection appears to vary from a few months to several years, death resulting in a majority of cases from cardiac dilatation and heart failure. Bronchitis and catarrhal pneumonia frequently assist in bringing about the fatal termination, and attacks of pleurisy, which seem to be very common, may aid in reducing the power of resistance of the patient, while in other cases the development of acute tuberculosis or the extension of a pre-existing phthisis may be the principal cause in producing death. The article is enriched by a full bibliography.

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

Regular Meeting, February 9, 1895, the President Dr. James Chadwick, in the chair.

Dr. M. H. Richardson read a paper on

TWO CASES OF DERMOID CYST OF THE OVARY INVOLVING THE SIGMOID FLEXURE, NECESSITATING RESECTION AND SUTURE OF THE INTESTINE.[1]

Dr. F. H. Davenport said he would feel more doubtful about the issue in leaving the dermoid than if he continued the operation. Aside from the growth of the cyst there is great danger of infection and suppuration, especially when the rectum becomes involved. He had operated on several suppurating dermoid cysts.

Dr. W. L. Burrage: Last summer I had a case of tear of the rectum due to intimate adhesions between an old salpingitis with degenerated ovaries and the bowel, and also a case of intestinal anastomosis for cancerous stricture of the sigmoid flexure.

The first case was a hysterectomy in a neurasthenic patient. In tearing the tubes and ovaries away from their attachments, I opened the rectum for a distance of three-quarters of an inch in its lower half. The rent was closed with a continuous Lembert stitch of fine silk; no abdominal drainage. The patient made a perfect recovery. In the second case I was called to do an emergency operation on a patient who had had symptoms of obstruction of the bowels for five weeks, and had been plied with castor oil, jalap elaterium, and croton oil for four days before I saw her. She was in a very bad shape, and operation was offered as a forlorn hope. The strictured portion of the gut was not firmly attached to the pelvic wall, and I did an end-to-end anastomosis. In a similar case now I should either use the Murphy button or be content with forming an artificial anus. The patient died of shock.

Injuries of the rectum and sigmoid flexure are much more easily repaired now than they were before the days of the Trendelenberg posture. I have a feeling that gauze drainage about a joint in the intestine is safer than without it.

Dr. F. B. Harrington said that the point made by Dr. Richardson of the use of gauze as a protective was of great value and saved much time. The use of the Murphy button also enables one to save a great deal of time. As regards the wounding of the ureters, he was interested in the remarks by Dr. Kelly in a recent number of the *Johns Hopkins Hospital Bulletin*, where in three cases he feared he might have sutured the ureter by mistake. In all of them he made a longitudinal cut in the ureter and passed a probe up and down. In one of the cases he found that a stitch had been put in.

Dr. W. H. Baker said he would like to emphasize the point brought out by the reader, that the man who opens the abdomen must be ready to face any emergency that may arise. The more clearly we can make our diagnosis in advance the better prepared we shall be. The dermoid cyst is more like a fibroid tumor in its slow growth. It is also more sensitive than any other tumor, for example, a pus-tube, fibroid or ovarian cyst.

Then there are more dense adhesions with a dermoid cyst than any other, hence we have to face greater difficulties in their removal. The sigmoid flexure and rectum are the places for nature's openings to occur. Dr. Hare has reported one that opened into the bladder, which is unusual.

Dr. J. R. Chadwick said that he had recently opened the ureter in doing a vaginal hysterectomy, so that the urine on the eighth day began to flow from the vagina. Ten days later the patient had a chill and the urine from the vagina showed a septic kidney. From this the patient recovered in two or three weeks, and a week later the opening into the vagina from the ureter spontaneously closed. Since then the patient has been perfectly well, and the urine now contains no casts.

Dr. E. W. Cushing, being requested to relate his experience in regard to these operations, said: This paper relates to very important matters, and I am glad that a surgeon of the authority of Dr. Richard-

[1] See page 399 of the Journal.

son has emphasized the necessity of being prepared in every abdominal operation to find what is unexpected and to do whatever is necessary, even if it is requisite to resect the intestine or to suture the ureter.

Every surgeon is liable to be met by conditions demanding the highest degree of technical skill, conditions where it is imperative to proceed to finish the operation *secundum artem*, and where retreat is disgraceful to the operator and fatal to the patient. Unfortunately there is a great deal of imperfect work, from lack of preparation, if not from lack of skill and courage.

My own experience in suturing the intestine has been mostly in cases where there was a pre-existent opening from a pus-tube into the bowel, where in the course of enucleation of the tube the fistulous communication had been discovered. In my early operations I lost two cases from not finding these openings; and later I learned to be on the watch for them, particularly when there was a history of repeated discharges of pus by the bowel, or where during the operation after a difficult enucleation of a pus-tube I found in it a rounded opening emitting pus, not a tear but the opening of the fistula. Some time ago I reported to this Society three cases in which I had found such an opening and had repaired it with successful results. I have had several others since.

Now that we have the immense advantage of the Trendelenberg position, so that we can have the benefit of sight in separating adhesions, it would be inexcusable to overlook such a condition, and thus sacrifice the patient.

To a lesser extent it is often necessary to repair the serous coat of the bowel when it is inevitably torn in separating dense adhesions, in removing pus-tubes or adherent tumors. This is one of the principal reasons why in the treatment of pyosalpinx abdominal section is to be preferred to the method by vaginal hysterectomy, which has lately become so popular. Yesterday I removed suppurating tubes and ovaries in the presence of a gentleman who is here to-night and who is the principal advocate of the French system of vaginal hysterectomy for such affections, and I called his attention to the fact that with every advantage of Trendelenberg's position, with the tube and adherent intestine in plain sight, it was impossible, even with the utmost delicacy, to separate them without damaging the serous coat of the bowel so that several sutures were necessary. My experience of the difficulty of operating on such cases through the vagina makes me firmly believe that when the present enthusiasm for the latter procedure has spread about in this country, it will lead to a large amount of bad surgery, such as leaving of masses of suppurating tube and ovary in the abdominal cavity, tearing and clamping of the intestine, rents of the bladder, clamping of the ureter, etc.

My own experience in resection of the intestine for injuries received during operation, or in order to complete an operation, is limited to two cases. The first was for an entero-vaginal fistula, which opened the tenth day after a very difficult vaginal hysterectomy for cancer of the uterus. I twice attempted to close the fistula from below, but did not succeed. The abdomen was opened, and the injured part of the small intestine (some three inches) was resected, the ends of the bowel being sewed together with silk in the ordinary way. The patient recovered from the operation very well. The other case was an elderly woman who had had a tumor, supposed to be a fibroid of the uterus, for more than twenty years. Her sufferings finally became intolerable, with symptoms of obstruction of the bowel, and at the same time the tumor commenced to grow rapidly. On opening the abdomen I found a dermoid cyst, which had become cancerous at the lower part, involving the sigmoid flexure of the colon, which passed through the cancerous mass. By the aid of the Murphy button I resected about six inches of the bowel, and found that by the use of this little device the resection was extraordinarily rapid and easy, forming a marked contrast to a case where I once resected the colon for malignant stenosis before the days of the button, and where the different size of the intestine above and below the stricture rendered the operation difficult and tedious. It is a particularly valuable feature of the button that it makes it easy to unite two ends of intestine of different sizes. I always have one at hand in operating in the abdomen. This case also recovered, the button coming away on the twentieth day. In both cases I used gauze drainage.

In regard to injuries of the ureter, my first experience was in removing a large fibroid tumor from a patient of Dr. T. Garceau. When the rubber ligature was removed from the stump eight days after operation, there was an escape of clear fluid which was evidently urine. Nevertheless, the case went on to recovery, and for a long time there was a urinary fistula at the site of the lowest part of the abdominal incision. Much against our expectation this finally closed, and the patient now enjoys perfect health, more than six years after the operation. In December, 1892, I removed an enormous myoma of the uterus, which had grown principally from its lower part and thus, as afterwards appeared, had lifted the whole peritoneal covering of the pelvis and with it the ureters. Suspecting something of the kind, I made the incision of the peritoneum of the tumor some four inches above the brim of the pelvis, and yet on the right side I cut the ureter. It had already been tied, as I supposed it to be a blood-vessel; but as some drops of clear fluid issued from the end above the ligature, which was on the tumor, the ligature was loosened, the lower end found and united to the upper end by two silk and one catgut sutures. The ureter on the other side was avoided. When the tumor was removed the pelvis was bare of peritoneum and the iliac vessels could be seen, but the large flaps of peritoneum from the tumor, carrying the ureters, covered in the pelvic surfaces. The tumor was fixed in the angle of the wound, and glass and gauze drainage was brought out at an opening separated from the stump by some sutures. On the third day some urine appeared in the gauze; but by care the stump was kept dry, and the patient recovered with a urinary fistula, which discharged perhaps half the urine from one kidney, or one-fourth of the total amount. Gradually the opening closed, and after about a year the discharge ceased entirely. I received a letter from this patient a few days ago, and she is now, two years after the operation, perfectly well and strong. The fistula has long been healed completely. I have referred to this case thus particularly because I believe it was the first time in this country, if not anywhere, that the ureter severed during operation was repaired, the patient surviving.

I certainly had then never heard of such an opera-

tion; and when I reported the case at the meeting of the Philadelphia Obstetrical Society in February, 1893, no one there had any knowledge of such a case. I published the case with a photograph of the specimen.[2]

Besides these two cases I have had two others in which the ureter was clamped in vaginal hysterectomy, in the days when I used clamps in this operation. In both the leak was noticed soon after the clamps were removed. In the first there was also a vesico-vaginal fistula. I passed a probe into the bladder through the urethra and out through the fistula into the vagina, then I passed it into the opening into the ureter, and having it held in place I proceeded to dissect the mucous membrane in such a way that I covered the probe entirely, thus turning the urine into the bladder. The patient recovered completely, and has had no trouble since. In the second case there was no vesico-vaginal opening; and so, encouraged by the result in the first case, I passed the sound into the bladder as before, through the urethra, and selecting a spot near the opening of the ureter into the vagina I made bold to thrust the sound through the bladder, from within outwards into the vagina, when I covered it in as before in the other case. This patient also recovered perfectly, and both have now been well for several years.

DR. RICHARDSON, in closing, said that the discussion confirmed the position he had taken, that one who opens the abdomen may have to deal with most grave and unexpected complications.

In the first case reported suture would have been impossible without the Trendelenberg position. He prefers end-to-end suture to the use of any mechanical contrivances, even if the time occupied is a little longer.

He does not think that any method of intestinal suture is safe against leakage; hence he always uses gauze drainage, as the patient, without drainage, would probably die if a stitch should give way. The Murphy button should be in every operating bag, but should be used only when time is very important, otherwise the suture is far better.

A single row of stitches is usually all that is essential in intestinal suture. He would agree with Dr. Baker as to the importance of exhausting every means of making an accurate physical diagnosis before opening the abdomen.

Finally, he would express his surprise at what nature will accomplish in these cases in the closure of fistulæ whether from the parotid, the bladder, the intestine, the gall-bladder, or even the ureter. It is not worth while to borrow trouble about these fistulæ, for in the majority of cases spontaneous closure will take place. Intestinal fistulæ especially have a way of taking care of themselves, not five per cent. probably requiring operative measures. In fact, unless a very considerable portion of the intestinal lumen is gone, spontaneous closure cannot be prevented.

A paper by DR. J. G. BLAKE was read in his absence by the Secretary, entitled

### THE PERMANENT RESULTS FROM THE ALEXANDER OPERATION.[3]

of which the following is an abstract:

[2] Annals of Gynæcology for February, 1893.

[3] To be published in the sixth series of the Boston City Hospital Medical and Surgical Reports.

Dr. Blake had received reports from operators throughout the United States and England, and had tabulated the results, aggregating with Dr. Chadwick's figures reported this evening, thirteen hundred cases. The failures did not exceed ten per cent. of the whole number operated upon, and applied chiefly to the early cases. He reported also fifty-three childbirths in which the position of the uterus was found to be unaffected by pregnancy or delivery.

The result of the investigation satisfied Dr. Blake that the operation was a useful and reliable one within its limits — backward displacement without adhesions — and was almost absolutely free from danger in competent hands. Hernia and abortion were also found to be of very rare occurrence.

DR. R. A. KINGMAN thought that the unfavorable results reported by some operators were due to the fact that the cases were badly selected. He had operated a large number of times by the Alexander method, failing in two cases only: one where the ligament was partly degenerated and broken, and one where the ligament could not be found. He considers the operation to be one absolutely free from danger and uniformly successful in properly selected cases.

DR. G. H. WASHBURN had seen the discomfort of frequent micturition follow the Alexander operation, from pulling the uterus up too close against the bladder. In properly selected cases he considers the operation a good one.

DR. E. W. CUSHING: It is with considerable reluctance, that I rise in response to the invitation to speak on this question, for I much dislike to mar the unanimity of an Alexander symposium, or to appear as the *advocatus Diaboli*, raising objections to the conclusions which would naturally be drawn from this able and carefully prepared paper. Nevertheless, I regret to have to say that after fair trial, and somewhat extended use, the Alexander operation has failed to answer my expectations, or to fulfil the claims that were originally made for it. There are radical objections to it in theory, and serious disadvantages connected with it in practice.

When the operation was first introduced into public attention in this country by the articles read at the Ninth International Medical Congress in 1887, I gave the procedure full acceptance, and collected for publication articles and abstracts, showing the status of the operation at that time.[4] I soon began to perform it, first by the method then somewhat in vogue, finding the ligaments at the external ring and tying the ends together, over iodoform gauze, across the abdomen. The ligaments dried into hard cords and it was very certain that they would not slip during the healing of the incisions. Then came the method practised by Etheridge, Kellogg and others, by which the roof of the inguinal canal was opened and the ligaments fished up through a very small aperture in the fascia. Dr. Blake will bear me witness that this makes a very neat operation, and that when I disparage the results of my own operations, as well as of those of others, it is not to be attributed to any particular want of skill on my part.

I performed the operation some thirty times or more and then I found fewer and fewer cases which seemed to me suitable for this procedure; because, with increasing knowledge of abdominal pathology, the field of the operation grew more and more circumscribed,

[4] Annals of Gynæcology, December, 1887.

and with increasing confidence in abdominal operations the procedure of the Alexander-Adams was more and more replaced by others of greater certainty and less liable to the remote bad results, which I began to find not only in my own cases but also in those who had undergone the operation at other hands.

What then are the real objections to the operation? First, as a matter of surgery, it is often unsatisfactory, because the ligaments may be rudimentary and hard to find. The bight of the ligament at best must be buried in the wound where it is likely to give rise to late trouble by having its nutrition cut off. In other words, there is an undue disturbance of the anatomical relation of the parts, which too often gives rise to suppuration soon or to hernia later.

Now this question of hernia is very serious, and I do not think that it has received sufficient consideration in the paper which we have just heard. We have there a long series of operations, but very little said of the resultant herniæ. Nevertheless, they do occur: Of my thirty cases no less than four were followed by hernia, and I know that the same result attended the operations of some of the gentlemen whose statistics are quoted in the paper, although at this moment I am not at liberty to state my authority beyond some observations of my own.[5]

Besides the facts cited in regard to difficulty, suppuration and hernia, it is not to be gainsaid that there is some danger to life in the operation. Not many fatal cases are reported, but they do occur; and on the whole there is nearly or quite as much danger connected with this operation as there is in expert hands with some of the more radical operations which may be used instead of it with greater certainty of good results, and without leaving two wounds instead of one — wounds in the weakest part of the human system, the inguinal canal, a part which although strong enough when our progenitors went on all fours, has not yet become able to endure the strain to which it is subjected in a considerable percentage of the present human race.

Apart from these special objections to the operation, there are others which are more important and which are fundamental. The operation is done in ignorance of the real condition inside the pelvis, and can therefore offer no certain promise of relieving the sufferings of the patient. As a matter of fact, it does not relieve them in a very considerable proportion of cases, and the wretched woman must again undergo the more radical operation which she should have had in the beginning.

To be sure, a very large part of the claims which were made for the Alexander operation in the beginning, or only a few years ago, are now abandoned. We do not read now of severe cases of procidentia uteri cured by this operation alone, such as were once reported and figured.[6] The claim has also been abandoned that the operation is suitable for cases where there are even moderate adhesions of the uterus, binding it down. If then the operation is limited strictly to cases where the uterus is entirely free and the uterine appendages are entirely healthy, it need not be condemned except for two facts. In the first place, I make bold to say that under such conditions the women do not suffer enough to justify the operation; and if they do suffer, we can never be sure just what the trouble is which causes the suffering. After we have excluded the commoner causes of retroversion — such as chronic metritis, subinvolution, ruptured perineum, overstretched pelvic floor, small fibroid tumor, etc. — even if we can be sure that the uterus is freely movable, and that the ovaries and tubes are not greatly enlarged or plainly adherent, we still have to remember that the commonest adhesions both of the uterus and of the tubes are to the intestines, and that it is perfectly possible to have an uterus apparently quite movable and yet bound to the bowel by a band of adhesions, either directly or by means of a tube, in such a way that after being replaced it will be pulled back again. The same thing occurs after Alexander's operation in a great many cases; and it is rarely possible to be sure of the absence of such bands, or of other diseases of the appendages, in women who really suffer enough to justify any important operation.

While, therefore, I would not be dogmatic and condemn the operation of Alexander and Adams in certain such rare cases, where there are no adhesions or diseases of uterus or appendages, yet practically I have not met in the last two years any case in which I did not prefer either to open the abdomen if the condition of the tubes was doubtful, or to perform vaginal hysterectomy where either the tubes and ovaries were certainly diseased, or the need and desire for restoration to full health so overshadowed the hope or expectation of further pregnancies, that it seemed better to remove the heavy and diseased uterus and the appendages and thus relieve the patient with certainty once for all.

On the whole, then, I consider the Alexander operation as belonging to a transition stage in the advance of gynesic surgery; both as a general step in the progress of our art, and, in my own case at least, as a stage of my development in knowledge, skill and experience.

Dr. J. R. Chadwick said he thought favorably of the operation, having performed it some one hundred times in private practice. The results were not all favorable, about fifteen in all proving unsuccessful. In only one case he failed to find the round ligaments. He never operated where there were adhesions of any account. He had never seen hernia following the operation. He always uses a pessary for a month or two following the operation.

Dr. F. B. Harrington considered the danger of hernia after the Alexander operation much less than after a laparotomy. There is no need of cutting the canal. As to the comparative danger of the two operations, it is infinitesimal in the Alexander, which we cannot say of laparotomy.

Dr. J. G. Blake, in closing, said that where hernia occurred his correspondents said they had used catgut. This was never the case where silk was used. In his own experience he had never seen hernia follow the operation. Rather than wear a pessary for life, the Alexander operation was far preferable.

[5] Since the day of the meeting where these remarks were made I have been permitted to publish the following letter:

Hospital for Ruptured and Crippled, New York.

My dear Doctor: — In reply to your letter about Alexander's operation, I will say, we have under observation here fourteen cases of hernia following the operation. The names of the surgeons I shall not give, but I will say that they are well-known gynecologists who advocate the operation. The patients, with hardly an exception, stated that there had been no improvement in the condition of the uterus. In several of the cases the hernia was very large and difficult to control with any form of apparatus. I do not mean to say the operation does no good in ideal cases, but I believe the possibility of hernia following the operation has been too little considered. I have no objection to your quoting the source of the statistics as I intend publishing them in detail soon. Very sincerely yours,

William B. Coley.

[6] Loc. cit., p. 123.

## SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

C. L. SCUDDER, M.D., SECRETARY.

REGULAR Meeting, Wednesday, February 6, 1895, DR. M. H. RICHARDSON in the chair.

DR. EDMUND D. SPEAR: I wish to present to the Section a patient whose case illustrates

### THE NASAL ORIGIN OF MANY TRIGEMINAL NEURALGIAS.

For the relief of pain in the face, the patient has suffered most of the operations upon the fifth nerve except that of resection of the Gasserian ganglion. He has had, in the first place, the lower branch of the fifth resected in the jaw; the second branch of the fifth, under the eye, removed; has had quite a number of teeth extracted; and finally had evulsion of the second and third branches of the fifth at their exit, by Dr. Richardson. The man suffered intense pain in his face for a period of ten years. He first applied to Dr. Blake, the aurist, for relief of pain in his ear, and Dr. Blake found suppurative inflammation of the ear with a polypus, which latter he removed without relief to the pain. Patient next consulted his family physician, who prescribed for him for a number of years. He also saw Dr. Beach, who prescribed for him. He then had Dr. Putnam see him, and some operation on the nerve was advised. In 1889 he had the final operation for the removal of the roots of the fifth. He was entirely relieved from pain for a year and a half. The pain usually came on about the time we get our hay-fever cases, and extended through the winter into the spring, so that about two-thirds of the time he was suffering from this neuralgic affection, which finally became very excessive and incapacitated him from work at times. After the last, the deep operation, he went to Dr. Wyman, who was accustomed to apply the galvanic current with a fair amount of relief so that he was able to work at his business, but he had to go for treatment every morning and night. I saw him the next year. He had been suffering seven weeks with excruciating pain in the upper jaw. The day he came to me he was unable to eat anything which required motion of the muscles. Could not touch his face in any part around the affected region, so that he could not even wash his face. There was also a remarkable difficulty in speech, apparently due to defective innervation of the facial and labial muscles. Almost complete sensation had returned in the face with the hyperesthesia of this nerve. On examination of the nose an enlarged hyperesthetic second turbinate was discovered. I began treating him locally in the nose. I cocainized the turbinate, treating it pretty carefully because the slightest stretching of the nostrils with the nasal speculum brought on pain. In a week he was able to eat solids. At the end of the next week I went into the country, and transferred the case to Dr. Wyman, whom I instructed in the use of local applications. At the end of six weeks the man was practically cured. He had a relapse the next season, a "cold" having probably induced congestion; and he had an attack of pain of the lancinating character, but not attended with spasm. I treated him locally again, relieved him, and later he had another attack which I relieved. He has now, for nearly a year, been free from pain.

DR. LOUIS M. TIFFANY of Baltimore, Md., read a paper on

### THE TREATMENT OF TRIGEMINAL NEURALGIA BY INTRACRANIAL NEURECTOMY.[1]

DR. N. P. DANDRIDGE, of Cincinnati, O., described

### ROSE'S OPERATION FOR THE REMOVAL OF THE GASSERIAN GANGLION.[2]

DR. MIXTER: Almost the last point mentioned in Dr. Dandridge's paper is interesting in this connection, and that is the question of other neurectomies in the treatment of this disease; and that I feel I am more competent to speak of, perhaps, than the operation on the Gasserian ganglion.

I have performed the operation of dividing the terminal branches in fifteen cases of division of the second and third divisions at the base of the skull; three I think were only divisions of the third division. It is interesting to know that in a certain number of those cases the pain has returned. In the first couple of years in which I had been performing this operation of taking out the nerve at the foramen ovale and rotundum, I began to think the patients were permanently cured; and although Rose and others published their operations on the Gasserian ganglion, I questioned the advisability of attacking the ganglion when the operation could be done so much easier at the foramen. Within the last six months, however, I have had three patients come back with severe neuralgia, in spite of this comparatively radical operation. That brings up, I think, the whole question as to whether in cases of beginning neuralgia which promises to be of epileptiform variety, where it may come on for a time and then disappear under treatment, whether it is best to go as far as we possibly can and take out the ganglion or do the more superficial neurectomies; whether time will show that removal of the Gasserian ganglion is a permanent cure. In a certain number of cases several years have elapsed since the nerves were divided at the foramina, and in certain cases the pain has returned. In the cases where pain has returned, operations had been performed before, and more superficial neurectomies had been performed. In one case the operation which I did was the sixth or seventh operation, and in that case the pain is back, but it is not as severe; and in none of these cases is the pain severe enough to force the patient to the further operation of removal of the Gasserian ganglion except one. That is the case operated on by Dr. Porter some three or four years ago, and the inferior dental nerve was removed. I operated on him about two years ago, and removed the second and third divisions at the foramina, and they were thoroughly removed; and then he got just about as long immunity as from the first operation — about eighteen months. Last summer I removed his Gasserian ganglion. You see eighteen months' or two years' immunity after dividing the superficial branch sometimes. I have seen the same immunity after dividing a deep branch; and some cases show return after division of the Gasserian ganglion. I think it rests with the neurologists and pathologists to show how fast these changes extend up the nerve, and whether we can by coming back to the Gasserian ganglion get behind them as you can in case of gan-

[1] Reserved for publication.
[2] See page 397 of the Journal.

grene get beyond it. The operation of removal of the Gasserian ganglion was in one of these cases of recurrence, and I did Hartwell's operation, not strictly perhaps Hartwell's, because I was not able to do it exactly as he has described it. The skull was very thick, and I could not break it down, and simply took it out with rongeur forceps as far down as necessary, and none of the bone taken out was replaced. I went through the dura twice, dividing and tying the middle meningeal. The brain was lifted up, having no dura to protect it, it having been torn slightly; but apparently that did no harm. The ganglion was reached with considerable difficulty. It is a very difficult operation. I have only performed one more difficult, and the ganglion was pretty thoroughly removed piecemeal with forceps and fine curved scissors. There was a very sharp attack of hemorrhage. Whether I wounded the sinus or not I do not know; but packing controlled it, and the patient recovered well from the ether with little shock. The packing was left in the skull. Rather a remarkable thing about the case was that two or three days after the operation the patient had an attack of erysipelas of the wound, the only case I had in my service last summer at the hospital. I expected he would die of meningitis, because it was a genuine attack of erysipelas over the face and head and about the wound; but he had not a single symptom pointing to the brain, and he recovered perfectly. There was a little sinus a short time and a stitch came out; and he has been well since. The man is now at work as surgical-instrument maker.

There are one or two points in regard to dividing the nerves at the base of the skull and not sawing through the zygoma, that might be mentioned. One is the question of wiring the zygoma. At first I always drilled and wired it, but later I seldom took the pains even to stitch up the fascia over the bone and simply let it drop into place. The temporal muscle atrophies, and by far the greatest deformity is depression caused by atrophy of the temporal; and the zygoma, if allowed to take whatever position it likes in the wound, will cause very little deformity.

Another point is the question of deafness after these operations. I think I have spoken of that in a paper. It has occurred several times. I have been so fortunate as to have Dr. Blake examine the ears of these patients. In one case there was a large ecchymosis about the eye where I went in over the second division through that incision; and also there was a large ecchymosis in the membrana tympani, and between the layers of that there was a very considerable quantity of blood in two or three cases, and deafness and noises in the ears persisted a long time.

Dr. Putnam: The pathology of the subject still seems to be in a great deal of obscurity. A few interesting anatomical observations have been published. One of the first of these was by Dr. Schweinitz of Philadelphia, who found a marked degeneration of the nerve fibres, while Dr. Dana of New York published the notes of several cases in which he had found a marked arterio-sclerosis of the blood-vessels and not much degeneration of the nerve-fibres. Since then there have been a limited number of others. I examined some years ago, the nerves from five patients operated on by Drs. Richardson, Cabot, Warren and Mixter. In some of them there was very marked degeneration; in others well-marked arterial change, such that some arteries were entirely plugged. But in others again there was no great change to be seen, so that even in cases where neuritis is present we cannot say positively that it was the real cause of the neuralgia. My own impression is that there are two elements present: one, peripheral irritation of one or another sort, and the other a — so to speak — physiological disturbance of the nervous centre which gives the neuralgia its peculiar character; for example, the neuralgia of the lower branches of the fifth is usually quite different from that of the supraorbital branch, in my experience. Then the question arises, supposing neuritis to be present and to be the main cause of the trouble so that the nerve deserves to be treated as a foreign body and removed, whether we can form any idea how far the neuritis has progressed in a given case. I think the history of parallel cases of neuralgia of the limbs after amputation are important in this connection. Dr. Abbe, of New York, has in several cases made section of the posterior nerve roots of the spinal canal above the ganglion in which they primarily arise, and although there was relief for a time, the pain returned, I think, in all, indicating that some change had taken place still further up. In cases of these facial neuralgias of the fifth pair where the nerve is so short it would seem that we might expect the neuritis to reach the Gasserian ganglion very early, the question would be whether it would go beyond it? I do not know that we have any reason to think it might not do so. It would certainly seem as if removal of the trophic ganglion of the nerve would afford an additional security although it may prove that the security is not so great as would seem.

I think there are one or two other interesting matters to consider in connection with the general subject. In the first place, the pain sometimes disappears for a long period, sometimes indeed ceases quite suddenly either spontaneously or as a result of some treatment such as Dr. Spear has spoken of, or from the careful relief of constipation or by aconitia, although the anatomical conditions remain the same.

Dr. Tiffany spoke of affection of taste as being absent in some cases and not in others. I think that is explained by the fact that taste conduction probably occurs through the fibres of the glosso-pharyngeal, which usually run in the course of the fifth nerve but have their origin in a different place.

As among the curious disturbances observed after these operations, I should like to mention a case operated on by Dr. Richardson where a peculiar lisp was brought on which never entirely disappeared, and indeed remained very marked for several years.

I think the fact referred to by one of the gentlemen, namely, the roughness of the skin of the forehead before the operation, which disappeared afterwards, is of great interest, as bearing out the view that trophic changes in the skin are due much less to absence of the influence of the nerve than to some morbid influence exerted by a diseased nerve, a fact long ago commented on by Dr. Weir Mitchell, Brown-Séquard and others.

Dr. Folsom: Personally I have had no experience of the operations described in these papers, but I have seen quite a number of cases, and there is one point to which my experience has led me which has not been referred to. I think, as Dr. Putnam says, that the causes of this condition are twofold. In the first place, they depend partly on distinct pathological conditions which can be recognized, and partly on

molecular or physiological conditions analogous to those which produce epilepsy. It seems to me that from both points of view it is very important, as soon as the diagnosis is distinctly made, not to delay the operation. Just as in epilepsy, the longer you delay the operation after you are tolerably sure of the conditions, the longer the habit has been established and the more difficult to eradicate; and so far as it depends on pathological changes, the longer you delay the greater the probability is of an extension of the pathological process. My course now is, when I see one of these cases in which the features are perfectly clear and distinct, to say: "This is not a medical case; it is a surgical case." And I decline to treat it. I saw a case in Lowell a little while ago in which I was urged by the family and patient to try various palliative measures, but I refused even to see the patient a second time. Dr. Richardson performed the external operation with success. It now and then happens that patients do not accept the advice; but the result in my experience has been that they have been disappointed with palliative measures, have spent time and money and at last regretted that they had not had the operation done before. Of course, a certain amount of treatment is often necessary in order to establish the diagnosis.

DR. WALTON: It is a boon to have this operation to fall back on as a last resort, especially if its results prove permanent. It is too early to decide that point. I was very glad to hear Dr. Dandridge speak as he did of the difficulties of the Rose operation. Perhaps my observations have been too limited to allow me to express an opinion on this point, but the Hartley operation has seemed to me a better operation as affording a much better view of the parts. It has seemed to me that the danger of injuring the Eustachian tube might add to the disadvantageous features of the Rose operation. One who has seen the Hartley operation, and is told that the difficulties of the Rose operation are greater, will, I think, be satisfied to rest with the former operation. The dangers of ocular paralysis by injury to the ocular nerves or of injuring the carotid artery or the cavernous sinus appear to have been exaggerated in apprehension as both the gentlemen have said. The latter injuries have not occurred although we have had about fifty cases now. And even if ocular paralyses do occur they are quite sure to prove temporary. The same is true of aphasia. The necessary manipulation of the temporo-sphenoidal lobe necessarily pressing on the centre for speech is apt to produce this symptom — certainly in Dr. Richardson's case the aphasia was very marked, but it was only a matter of a few days before it entirely disappeared, so that the patient may be assured that this symptom will be temporary.

If removal of the Gasserian ganglion gives permanent relief in all those cases of intractable neuralgia in which drugs have proved useless it may be wise to at once advise it; but if time shows that removal of the Gasserian ganglion is, like the others, temporary, it will be wiser to advise the peripheral operations first as they do seem to offer a certain immunity, and perhaps this order will always be followed in any event, owing to the formidable nature and the difficulties of the intracranial operation.

DR. ELLIOT: I have seen one case that may interest the Society. That is a case that came to me in the summer with every indication that the neuralgia which had existed for five years or more had returned centrally after the peripheral operations had been done; first, in 1888, the inferior dental was cut, with relief. In 1890, the nerves were cut at the base of the skull at the foramen ovale and foramen rotundum. In 1894, he came to me with return of all his symptoms, that is, he had had three years of immunity. This seemed to indicate the removal of the Gasserian ganglion; but, rather as an experiment, I thought I would expose the foramen ovale again and see what could be done. On cutting down I found something that looked like regenerated nerve fibres, although I could not get enough of them to have them examined; but on cutting away those fibres and putting a tenaculum into the foramen ovale and rooting it round to stir up the ganglion as much as possible and packing the foramen ovale with iodoform gauze, I got an immediate relief and so far a perfect cure. This, I thought, would be interesting as showing that, if the neuralgia returned after section of the nerves at the base of the skull, it is not impossible that still more relief can be obtained by secondary operation before removing the Gasserian ganglion.

DR. TAYLOR: Through the kindness of Dr. Harrington, I have had an opportunity to examine the lower division of a fifth nerve removed for neuralgia. In connection with the pathological anatomy the nerve showed interesting changes, although it is not easy to say whether they are to be regarded as pathological or due simply to the violent method of extraction of the nerve. This nerve was removed by twisting, and, as a result, showed when stained by the hemotoxylin method of Weigert a curious breaking up of the myeline. There was also a cell infiltration about the smaller blood-vessels, apparently the beginning of an inflammatory process. Neither Dr. Councilman nor the others who saw it, however, were willing to say, without further control experiments, that that also might not have been produced by the violent method of extraction of the nerve.

DR. WARREN: I have listened with much interest to the discussion. My experience with the more radical operations has been but limited. I have performed one operation according to Mixter's method. Of course, I have done quite a number of the more peripheral operations. I wish that I could give the Section some statistics about the results. Dr. Putnam has followed those operations more than I have. In some cases the neuralgia has returned. I recall one operation performed, at the request of Dr. Putnam, on a very old lady, for division of the infraorbital nerve by tracing it to the end of the infraorbital canal. There has been no return.

The removal of the Gasserian ganglion appeals to me as an attractive operation. In the first place, judging from my experience in trephining operations in that locality, that one can see better what he is doing than when trying to reach the nerve roots as they emerge from the skull. Recently, in an operation for a cyst, I was in the neighborhood of the Gasserian ganglion, and it seemed that it would have been an easy matter to have exposed that nerve structure.

The removal of the Gasserian ganglion also appeals to me from the point of view of regeneration of the nerve tissue. We know that nerve tissue is actively regenerated. I have seen the whole infraorbital canal refilled with nerve tissue after an operation. The nearer we get to brain-structure the less we have of

repair, and it is stated by pathologists that there is practically no repair of brain tissue itself. In ganglion tissue we have tissue closely allied to that; and if we destroy the ganglion, we must cut off the approach of the nerve trunks to their point of origin in the brain substance. I agree with what has been said, that the minor operations are operations to be advised in the first instance, and that we ought to reserve these major operations for selected cases.

DR. RICHARDSON: I have been very much interested always in the subject of the peripheral nerves, especially in the matter of neuralgia, and have approached gradually the Gasserian ganglion, beginning first with the infraorbital, supraorbital and finally getting at the ganglion itself. It seems to me we ought to exhaust every method of treatment before taking out the ganglion; for in many cases by so simple an operation as evulsion of the mental, infra- or supra-orbital portions, devoid of danger, we may secure a permanent immunity. Of course, the number of cases cured by so simple an operation is not many, but then we can repeat the deeper operation in the sphenomaxillary fossa. That operation, although one of the most difficult operations in surgery, does give a long immunity. In the case Dr. Spear has shown, on which I operated first on the infraorbital, dental, finally by evulsing entirely the third division, as I understand, since that last operation there has been immunity in the course of the third nerve, and while there is regeneration probably of the second division, the third remains still without pain. If so severe a neuralgia as this patient had can be cured by the trivial operations of Dr. Spear, we are not justified in resorting to such measures as opening the skull. I have had very little experience on the ganglion except on the cadaver. It is very hard to get at it. Rose's operation seems to me much more difficult than the Hartley method. It is because you cannot see what you are doing; and while Dr. Dandridge's reasons for preferring that operation appeal to me in that the hemorrhage is in the beginning rather than at the end, still I should prefer very much to do an operation where I can see exactly what is going on. In my single case I was able through the unfortunate tear in the dura mater to see perfectly everything I was about, and could and did cut the nerve between the pons and edge of the petrous portion where it became invested in the dura mater. That patient has been well since, although only a few months have elapsed. The neuralgias are very discouraging; and if we find that the Gasserian ganglion operation gives no greater immunity than the peripheral ones, we ought to go by gradual steps to the most radical operation, each one giving the patient from one to two years of immunity.

Upon motion of Dr. Porter, the thanks of the Section were extended to Dr. Tiffany and Dr. Dandridge for the papers presented.

### ANATOMICAL SPECIMENS.

DR. WALTON: Through the kindness of Dr. Warren and Dr. Harrington, I have here two specimens of crushed spinal cord, both from cases of fracture in the cervical region. We often read of this condition, but do not often have an opportunity to see it post-mortem. In one case, crushed at the fourth cervical root, there was complete paralysis of the arms and legs with numbness, whereas in the other the biceps and deltoid were spared so that the patient had the arms elevated in the characteristic position which always denotes crushing injuries at about the height of the fifth to the sixth roots. In Dr. Warren's case the crush was not directly under the point of fracture. The fracture was of the second cervical vertebra, whereas the crush was lower, showing either that the crush was produced by a sudden bending of the cord or else by the bones falling back into place as they sometimes do. These cases illustrate another important point, which is that palpation is very apt to be at fault, most serious crushes being found where examination of the spinous processes shows nothing. I have not found in literature any records of successful cases of luminectomy for fracture in this particular region. I should be inclined to agree with Thorburn that in the dorsal region the operations are, as a rule, unsatisfactory except where the fracture falls below the first lumbar vertebra so as to press on the cauda equina rather than on the spinal cord itself. Even if the vertebra falls back into place, the chances are that the cord has been crushed, and there is very little to hope for in the dorsal region and less yet in the cervical.

## THE NEW YORK NEUROLOGICAL SOCIETY.

STATED Meeting, Tuesday evening, March 5, 1895, DR. E. D. FISHER, President, in the chair.

### BRAIN SPECIMEN.

DR. ALFRED WIENER exhibited the brain removed from a boy aged fourteen years, who eight weeks ago had an attack of acute articular rheumatism. From this he recovered entirely and was able to return to school. Eight days ago he began to complain of pain in the right occipital region and some pain in the right ear. The pain gradually grew more severe, and afterwards became more pronounced on the left side. There were no eye symptoms and no discharge from the ears. A diagnosis of meningitis was made. The patient was seen in consultation by Drs. Sachs and Gruening, the latter suspected a thrombus in the lateral sinus. The temperature became more and more elevated, and pyemic in character towards the last, and the boy died in a stuporous condition on the seventh day. At the autopsy, made twenty-four hours after death, a necrosis of the posterior surface of the petrous portion of the right temporal bone was found, with an acute meningitis on the opposite side of the brain. There was also a small thrombus of the lateral sinus, and the tentorium cerebelli was infiltrated with pus. Four months ago the boy had a suppurating otitis, which seemed to heal entirely.

DR. L. F. BISHOP presented a case of

### EDEMA OF THE RIGHT UPPER EXTREMITY.

The patient was a female, age thirty-nine. Family history negative. She had never had any serious illness. There was no organic trouble, no hysteria. Seven months ago she first noticed a swelling of the thumb on the right hand, which gradually extended upward as far as the elbow. The capillary circulation is more sluggish than in the opposite forearm. There is no change in the pulse-rate; no loss of power. All local causes for the edema have been carefully excluded. Recently, during an attack of influenza, the swelling temporarily disappeared. Dr. Bishop termed the case one of angio-neurotic edema.

DR. JOSEPH COLLINS said that Dr. Bishop's case, in most of its characteristics, did not agree with those that have been usually observed in these cases. Angio-neurotic edema is evanescent, the swelling rarely lasting more than a few days. In this case there is slight pitting on pressure and an absence of the tense, hard skin usually seen.

DR. C. L. DANA said that while this case did not correspond with the ordinary picture of this affection, yet there are cases of neurotic edema which affect the limb in this way. All other possible causes of the edema must be carefully excluded.

### AN OPENING IN THE SKULL.

DR. WILLIAM M. LESZYNSKY presented a woman who had an opening in the skull, in the left parietal region. The opening did not extend through the inner table. It was irregular in outline, with fissures running in different directions. There was no history of trauma, and the condition had existed from early childhood. Six years ago the patient began to suffer from epilepsy, the attacks being general in character. Dr. Leszynsky thought the loss of bone might be the result of a trauma in early life, followed by periostitis.

DR. DANA said the deficiency in the cranium in this case was probably the result of a defect in osseous development, and regarded it as one of the stigmata of degeneration which sometimes accompany epilepsy.

### PATHOLOGICAL SPECIMEN OF INFANTILE PARALYSIS.

DR. L. STIEGLITZ exhibited a pathological specimen in connection with the report of the following case: The patient was a female; age twenty months. She was first seen in February, 1894, when she presented the clinical picture of complete left hemiplegia, and paralysis of the right third nerve. The child was poorly developed. The left knee-jerk was exaggerated. Both pain and temperature sense were unaffected on the paralyzed side. The mother stated that six months before she had noticed that the child did not use its left arm as freely as the right. The paralysis from that time on gradually increased, until the child gave up all attempts at walking. Three months before coming under observation the ptosis of the right eye came on, with divergent squint. A diagnosis of tumor, probably tubercular, in the right crus was made, although the possibility of glioma was considered. In the following December paralysis of the left third nerve developed, and the child grew drowsy and apathetic. On February 17, 1895, there were twitchings, epileptic in character, on the paralyzed side of the body. Death occurred two days later. At the autopsy, which was made two hours after death, the brain was found to be large, the lateral ventricles dilated. In the right crus a tumor was found, with a cheesy centre; this spread upward and forward across the median line into the left crus, involving the region of the third nerve.

DR. FISHER, the President, said that the epileptic seizures in this case were of interest, as the tumor was so far from the cortex. They could only be explained on the ground that the impulses were interrupted as they passed downwards.

### PALMUS.

DR. LANDON CARTER GRAY read a paper with this title. He stated that within the last few years he had seen a number of patients with certain muscular movements to which the French authors have given the name *tic convulsif*. They were first described in 1885 by Gilles de La Tourette, under the name "A Nervous Affection characterized by Motor Incoördination, accompanied by Echolalia and Coprolalia." The details of this description are as follows: Motor incoördination is the first symptom, beginning gradually and without apparently influencing the general health. The face or the upper extremities are first affected. It is first noticed that the fingers are alternately extended and flexed, or that the shoulders are raised. At about the same time the muscles of the face become implicated; there is often incessant winking, or the buccal commissures are actively drawn upward and outward, or there is contraction of the masseters, causing a grating of the teeth, or there may be projection of the tongue. The muscles of the neck may take part in the movements, the head being alternately flexed and extended. The lower extremities may share in the general disturbance, but the incoördination in them is somewhat different, in that the movements are not limited to isolated muscular groups, as is the case in the parts above described, but extend over the entirety of the muscles of one or the other member, and sometimes over both. The patient stamps his foot, stoops or erects himself, or the movement may consist of a veritable jump. All these movements are very sudden and rapid, and may be accompanied by an inarticulate cry. At times this cry may be articulate, consisting of a word which varies in different patients, and which was supposed to possess certain characteristics of an echo; hence the name "echolalia." The coprolalia was regarded by La Tourette as pathognomonic, and consists of profane oaths or obscene epithets. The French authors had their attention directed to this subject by the descriptions of two American writers, those of Beard upon the jumpers of Maine, published in 1880, and that of Hammond upon *Miryachit*, a similar disease of the Orient.

Dr. Gray said that the main symptoms of this affection are much more frequent than has been hitherto supposed, and he has ventured to coin for it a new name, "Palmus," from the Greek word πάλμος, meaning palpitation or twitching of the heart. The affection is divisible into the following types:

(1) Facial Palmus. This constitutes the most frequent type. It consists of sudden, shock-like movements of lightning-like rapidity, causing a sudden wink or twitch of one cheek, occasionally of both, or of the brow. This series of movements is generally followed by a second series, weaker than the first, and sometimes by a third. In the majority of cases the winking is bilateral.

(2) General Palmus. This consists of intermittent, shock-like movements of different muscles of the body.

(3) Acute Palmus. In one case of this coming under his observation the patient was a boy aged six years. He had then had the trouble about six months. His palmodic movements were very curious. For instance, when standing near a table looking at something, his chin would suddenly come down with a thump that would leave a black and blue mark; or, while standing quietly, his legs would give a sudden twitch and he would be thrown violently to the ground.

(4) General Palmus with Pseudo-Melancholia. Of this type two cases have come under his observation.

The diagnosis of palmus can be readily made. The

only disease with which it is likely to be confounded is chorea, from which it differs radically. In chorea the movements usually involve the fibrillæ of muscles and not muscular groups, either acting singly or in coördination with other muscular groups.

The prognosis varies according to the type. The author stated he has never yet seen a case of the facial or general variety cured; however, in none of those cases was he able to carry out prolonged and rigid treatment. The case of acute palmus was readily cured under large doses of arsenic and rest in bed. One case of palmus with pseudo-melancholia was cured; the other was lost sight of.

Thus far no light has been thrown upon the pathology of this disease. As regards treatment: arsenic has a beneficial effect, but this is not of as long duration as the same drug has in chorea. In the facial and general varieties the arsenic alone will not answer, and in one case of generalized palmus with pseudo-melancholia it had no effect whatever. Hyoscyamine and hyoscine have a good effect in some cases. Iron has been utterly useless; also the bromides. Galvanic electricity is of distinct benefit. In facial palmus he has seen good results from the removal of errors of refraction or irritative lesions of the naso-pharynx. Absolute rest is also indicated, particularly at the outset, and the general health of the patient should receive attention.

Dr. David L. Webster said that palmus appears to be an affection which is known under various names. About twenty-five years ago he first became acquainted with it under the name of "blepharospasm;" later on it was called "blepharo-facial spasm," and still later "hemi- or bi-facial spasm," the latter when both sides of the face were affected. Then again it was heard of under the name of *tic convulsif*, and finally "palmus." There are several varieties of the disease. The easiest kind of all to cure is that which only simulates the real disease and is produced by a local irritation, such as foreign bodies in the eye, etc. Another variety is most common in school children, who are perhaps poorly nourished and use their eyes too much; sometimes a number of cases occur in the same school, which is probably due to imitation. These cases are generally curable. One such case under his observation was cured by the local use of atropine and proper glasses. In another case the symptoms disappeared after a congenital phimosis had been removed. A very severe and intractable variety of the disease is sometimes met with in the aged. Internally, he usually employs arsenic in the treatment of these cases. Conium has also been recommended.

Dr. G. M. Hammond said that about eight years ago he read a paper on this subject in which he reported a number of cases. In his experience, arsenic, even in toxic doses, rarely proves of much benefit. On the other hand, he has used conium with much success. He usually begins with five-drop doses, gradually increasing to twenty-five or thirty drops.

Dr. T. R. Pooley said that two varieties of blepharospasm are usually recognized: the symptomatic, which depends on some eye lesion, the presence of a foreign body, etc., and the essential blepharospasm, which is entirely independent of such cause. In the first variety, if we cure the eye trouble we cure the blepharospasm. In both varieties the symptoms may manifest themselves in either the clonic or tonic form; in the former the movements of the lids are momentary, while in the latter form the lids may remain closed for a considerable period of time. In nearly all of these cases pressure points may be found, generally in relation with the trigeminal nerve or some of its branches. The supra- and infra-orbital branches are often favorite locations. Such pressure-points may also be found in the nose, throat and mouth, especially when carious teeth exist. In exceptional cases they are found in other and more remote parts of the body. When such a pressure-point is pressed upon, the movements cease like magic. The way to cure the disease is to attack the point from which the reflex irritation starts. Stretching of the nerve is recommended in severe cases.

Dr. Joseph Collins presented

### A CASE OF TABES, ASSOCIATED WITH UNILATERAL REFLEX IRIDOPLEGIA AND POST-HEMIPLEGIC ATHETOSIS.

The patient, a man thirty-seven years old, was presented by Dr. Collins at the last meeting of the Society (February, 1895). The symptoms in the case were not those of a single clinical entity, but presented themselves in the form of an athetosis, indicating a lesion in the internal capsule or crus, and locomotor ataxia, pointing to involvement of the posterior root zones of the cord. Although no history of syphilis could be elicited, and in the face of the fact that specific treatment had produced no improvement, the speaker said he had assumed that the man's symptoms were a manifestation of cerebro-spinal syphilis; and he presented the patient as one of cerebro-spinal syphilis of the tabic type, associated with athetoid movements. At that meeting, three members of the Society stated that in their opinion there was nothing in the case to warrant either the assumption or the diagnosis, and they expressed the view that the case was one of multiple sclerosis. Since then these members have had an opportunity to examine the patient at their convenience and substantiate either their or his own diagnosis.

Careful investigation has also led to the discovery of new evidence which clears up some of the obscure points in the case, and likewise tends to uphold the original diagnosis. The most important of these new facts, which was obtained from one of the patient's previous physicians (he himself having failed to make any mention of it), was that about fifteen years ago he had an attack of hemiplegia, the right side of the body being completely paralyzed. There was some disturbance of speech. There was no loss of consciousness. The patient did not think that his eyes were affected at that time. This attack, Dr. Collins said, was probably one of cerebral thrombosis, of specific origin. The patient, however, continued to deny any knowledge of infection. One of his sisters, on being interviewed, stated that six or seven years before the appearance of the hemiplegia he had a sore on the inside of his lip which lasted for several weeks; it was elevated, and the physician who treated it dusted it with powder and gave him medicine internally for quite a time. Although much stress cannot be laid on this labial affection, it is within the bounds of possibility that it may have been a chancre.

Dr. Collins said that some of the gentlemen who examined the patient and reached a diagnosis of multiple sclerosis attached great importance to the

twitching movements of the eye-ball. This he has been accustomed to think is not a very rare symptom in tabes dorsalis. Berger has found it absent but six times in 109 cases. The speaker has found it present in five cases out of 26 which he now has under observation. Therefore, instead of militating against the diagnosis of tabes, it would rather tend to favor it.

In an examination of the patient's eyes made on March 3d by Dr. Ward A. Holden, he states in his report that this twitching of the eyes is not a true nystagmus, in the sense in which the term is used by ophthalmologists, but the twitching that may occur with paralysis of the extrinsic muscles of the eye and with various cerebral and spinal affections. He also found left unilateral reflex iridoplegia, which is of very rare occurrence, and in the few cases that have been reported was associated with mydriasis and not with myosis, as in this case. Dr. Collins said that, so far as he could learn, only five cases of unilateral reflex iridoplegia have been reported, and four of these were in tabes.

DR. SACHS said he was inclined to regard the case as one of cerebro-spinal syphilis of the tabic type. He would insist on that diagnosis even if no history of syphilis was obtainable. One very important symptom which points in that direction is the dissimilarity of the ocular conditions on the two sides. The movements of the right hand Dr. Sachs said he hardly regarded as an athetosis; to call them ataxic or choreic he thought would be more correct. They were probably due to an irritating lesion of the capsule or the ganglia surrounding it. As regards the movements of the eyes, the speaker said that these lateral jerky movements which are frequently styled nystagmus are not to be compared with the rapid oscillatory movements we get in true nystagmus. He has noticed slight movements of this character in persons without tabes and without cerebro-spinal syphilis.

DR. HERTER said he still held to his original view that the case was one of multiple sclerosis. He did this chiefly because he believed that a certain proportion of cases of multiple sclerosis were of syphilitic origin. Notwithstanding the fact that it has been pretty clearly shown that this man has had syphilis, his symptoms correspond more closely to multiple sclerosis than to tabes. The man has probably had cerebro-spinal syphilis, and at the present time he has that sclerotic process going on which belongs to the later periods of the disease. The changes that have occurred in his brain and cord are probably of a sclerotic rather than of an inflammatory nature. Recent researches show that in multiple sclerosis we have patches of degeneration scattered in an irregular way throughout the nervous system, and there seems to be no doubt that these patches are related to the blood-vessels.

Dr. Herter said that in reaching a diagnosis in this case, he laid considerable stress on the nystagmus, which he believes is more commonly met with in multiple sclerosis than in tabes. This patient also has marked slowness of speech. There is an entire absence of ataxia in the legs, and he has never had any lightning-like pains. The pupils are not the typical Argyll-Robertson pupils, and are more in line with those found in multiple cerebro-spinal syphilis than in tabes. It was stated at the last meeting that the man was impotent for a time; on questioning him about this, he stated that there was a loss of sexual desire, but he was always able to have erections. The slight optic atrophy which exists is quite as characteristic of multiple sclerosis as of tabes.

DR. J. ARTHUR BOOTH said that during his examination of the man made a few days ago, forced flexion and extension of the head produced a distinct oscillatory tremor, which is regarded as a symptom of sclerosis. The man's penis bears a scar, which he claims was produced by bringing it in contact with a hot stove.

DR. FREDERICK PETERSON said that in view of the additions made to the previous history of the case he was not prepared to uphold his diagnosis of multiple sclerosis, but he still failed to see any justification for the diagnosis of tabes. It appears that the only symptom of tabes the man has is the absence of knee-jerks, which may be congenital or occur in multiple sclerosis or under other circumstances. He has never had any pains; he has not the typical Argyll pupils; there is no history of impotence; the cilio-spinal reflex is present on both sides.

DR. COLLINS, in closing the discussion, said he did not see how this could be regarded as a case of multiple sclerosis, unless our present conception of that disease be entirely changed. It is very difficult to get a true history of the case, as the man's statements are very unreliable.

## MASSACHUSETTS MEDICO-LEGAL SOCIETY.

F. W. DRAPER, M.D., SECRETARY.

THE Society met February 6, 1895, eighteen members present, and the President, DR. Z. B. ADAMS, in the chair.

DR. J. A. MEAD, of Watertown, read a paper on

### THE MURDER OF JAMES FARRAR.[1]

DR. S. W. ABBOTT said that the paper seemed to him to present an extremely interesting, as well as clear and correct, statement of the subject discussed. He thought the effects of pistol-shots fired at an angle with the skin could be still farther illustrated well by exaggerating the angle and bringing it nearer the plane of the skin, making a very acute angle; if the pistol were held within five or ten degrees of the plane of the skin, instead of forty-five degrees, the bullet would make a longitudinal mark or wound; and if this is true of a five or ten degrees' angle, it ought to be of a forty-five or even seventy degrees.

DR. MEAD explained that he selected forty-five degrees for his experiments, because that was the angle at which, according to the defence in the trial reported, the bullet entered the murdered man's body. The purpose of the experiments was to show that the shape of a bullet-hole made by firing at an angle of forty-five degrees was elliptical and not circular.

DR. QUIMBY, of Gloucester, said that he had noticed in some cases of suicide, in which the weapon was naturally supposed to be in close contact with the skin, that powder-marks were absent; the pistol must, he thought, be held at some little distance before leaving visible powder-marks.

DR. HARTWELL, of Ayer, commented unfavorably upon the appearance, at the trial, of a medical examiner acting as a medical expert for the defence. Dr. Hartwell recalled the able essay of Dr. Fish, of Amherst, on the external appearances of pistol-shot

[1] See page 402 of the Journal.

wounds and especially the original observation relative to the brand above the entrance-wound of the bullet and its contrast with the other appearances in the vicinity of the lesion.

DR. ADAMS, of Framingham, spoke of the interesting fact brought out in the paper and alluded to by Dr. Quimby, that in order to get the spattering effects of powder-grains, the pistol must be held at some distance; if held very near, the effect is to burn; it must, he thought, be held at least twelve inches away to make powder-marks. Most of these marks would be found on the upper side of the wound.

DR. MEAD said that Dr. Fish's observation was that the exaggerated brand on the skin was always to be found, with relation to the wound, on that part which corresponded with the position of the pistol's hammer in the act of firing.

DR. GILBERT, of Quincy, said he had made some experiments with a pistol with a view to ascertain at what distance the powder-marks would show and whether they would show above or all around. They invariably showed above; that is, in the direction from the pistol where the cock of the weapon was. He attributed it to the rebound in firing.

DR. HARTWELL asked why, if the weapon "kicked" in the firing, the bullet did not go upward as well as the powder.

DR. JOHNSON, of Salem, said the explanation seemed to him to be in the shape of the revolver and the consequent leverage in holding it in firing; the interval of time must be extremely small between the discharge of the ball and the escape of the powder, yet there might be opportunity to get a throw to the powder that the ball did not have.

DR. PAINE, of Brockton, reported the case of a man, an epileptic, who had attempted suicide by shooting himself in the forehead. There was no blackening of the skin or staining with powder-marks.

DR. ADAMS spoke of the ease with which bullets are deflected from a direct line in passing through the tissues. A bullet will be altered in shape by striking soft parts, without contact with any solid tissue, like bone. Even thin plates of bone are quite enough to change the missile's course abruptly. He related a case illustrating deflection within the skull.

DR. ABBOTT contributed some examples of extraordinary deflection of bullets.

DR. MEAD, recurring to the Barrett trial, said that the defence took the ground that the sternum was too soft a bone to deflect the bullet, that it was a spongy bone and so unequal to the task of turning a bullet. The attorney-general asked if flesh alone would not cause a bullet to deviate from a straight course; and Dr. Hibbert did not know what "flesh" meant, and avoided answering. The experts for the State, on the other hand, were clearly of the opinion that the sternum was made of tissues quite capable of deflecting a bullet in the way demonstrated at the autopsy.

DR. HOWE, of Cohasset, inquired whether in those cases in which the ball pursued a circuitous course, the velocity had anything to do with the result — whether the bullet was a spent missile or was fired at close range.

DR. ADAMS was of the opinion that it made not the slightest difference; that the speed of the ball would not alter the main fact, which is that the bullet would be deflected by striking soft substances as well as hard, within ordinary limits.

THE BOSTON

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## SCIENTIFIC RESEARCH IN MEDICINE.

AT the recent Thirteenth Congress for Clinical Medicine held at Munich, Professor von Ziemssen delivered the opening address. His remarks were directed toward the advantages to be derived from such meetings for the development of medicine in general; this led him to a consideration of recent progress and the part which scientific investigation has played in that progress. We venture to quote at length a passage, which admirably defines the attitude which physicians everywhere should hold toward what they are too apt to regard as unpractical and therefore beyond the sphere of their interest and support. Von Ziemssen sums up the function of a Medical Congress, as representative of the medical body at large, as follows:

"Our Congress strives continually toward the common end of widening our knowledge and increasing our ability, working in conjunction with all the special branches, and with related sciences. While we hold clearly before us the ideal functions of medicine to help the sick, and to protect the healthy from disease, yet, at the same time, we regard no fact which pure science affords as unimportant, even if its value for the practical end of medicine be obscure. *Only through knowledge comes the power of intelligent action.* Only when it is possible to get at the causes of (physical) appearances, and to have knowledge of the laws, according to which the acts of life take place, will it be possible rightly to judge the diseased processes of the human organism, and to find the means of directing them again into normal channels. The Bavarian Academy of Science states its aim in the words: 'Rerum cognoscere causas.' Gentleman, our efforts to-day should lay claim to this sentiment. It is not only for its practical end that we pursue our science, but also for its own sake and with the exalted consciousness that every scientific fact at some future day may so develop as to have a far-reaching influence upon the health and life of the individual as well as of the community at large.

"Herein lies the greatness and the exaltation of science, that every new fact, every new method conceals within itself the germ of future advance in the line of civilization. Especially is it new methods of investigation which open fresh paths for science and for life. This fact the history of medicine during the present century most certainly teaches."

To a certain small class in the medical community these statements may seem trite enough. There have always been a few earnest investigators whose only adequate reward has lain in the satisfied consciousness

of the performance of careful work, with no thought as to its definitely practical outcome. To such men, and they are unfortunately few, von Ziemssen's remarks will appear altogether commonplace and unnecessary. The idea of research, however, as an end in itself has no hold whatever upon the mind of the general public. Utility has been the watchword; and where utility has failed to assert itself with sufficient force, people — physicians as well as others — have drawn back in anxiety lest they were compromising themselves by devotion to that which was unpractical. Such is the sentiment that we meet at every turn. That it is not dead in Germany Professor von Zeimssen's earnest appeal would seem to indicate; that it is extremely prevalent in America the smallest experience clearly shows. And yet the slightest consideration, if we are fair-minded, must convince us of the weak foundation upon which such a view rests, and how detrimental it is to the further development of medicine.

In the first place, we should distinctly recognize the fact of the value of knowledge for its own sake, and in such recognition see the highest utilitarianism. The definite establishment of facts of whatever character must, in the nature of things, make future deductions more easy in fields apparently remote. It is often quite impossible to say what such a deduction will be, and how such isolated facts may work in bringing about a practical result, but that such is inevitably the case no one of education may for a moment doubt. The whole process of the development of a practical science, like medicine, rests upon a foundation of more or less isolated facts of a purely impractical nature. The modern surgeon is not always aware that the practice of his art is rendered possible by the theoretical investigations of Pasteur on the organisms in atmospheric air, a scientific fact which it was Lister's function merely to render practical. The comparative failure of Koch's specific treatment of tuberculosis has blinded the eyes of many to the incalculable value of the principle which he has done so much to inaugurate, and which in modified form is now bearing its fruit in the doctrine of serum-therapy. Almost a parallel case is the ever-contested question of vivisection. Here, again, if the positive utility to man of every experiment is to be maintained as a justification for its continuance, the practice must evidently stop. If its justification rests upon anything, it rests upon the broader conception, upon which we have been insisting, that investigation for its own sake is a worthy end, and that the ultimate results will unquestionably justify the broader view by leading to a final benefit, whose scope we are at present quite unable to see, but of whose existence we feel morally certain, since we believe knowledge *per se* to be ultimately useful. Such is the broader utilitarianism for which Zeimssen contends, and for which every one must contend who has the true interests of medicine at heart.

It is altogether to be regretted that even the rising generations of physicians are not imbued with this idea, in spite of the hopeful scientific tendencies of the last half century. There still exists a depressing atmosphere of practicality. Young men of marked ability are forever weighing their scientific tastes in the balance with the practical demands of their profession, and entirely apart from the pressure of circumstances, are finding the greater weight of inducement in the practical fields. The very commonest answer to the appeal for scientific workers is: "How will that help me to cure my patients? What definite utilitarian benefit am I to get from my laboratory work?" In other words, such a man says, "I will be a good follower, I will gladly benefit by the results of the work of other men; but personally I will not use my mind to increase the stock of general knowledge." This is the gloomy side of the picture. There is another as well. The number of men who are doing original scientific work in our community, as in others, is constantly growing. The spirit of research for its own sake is gaining ground. There are at least a few men who are imbued with the enthusiasm of progress, and who see no possible path for such progress except along the lines of painstaking and self-sacrificing research. When such a spirit becomes general, and each and every man comes to regard himself as a possible leader, and not only a faithful follower, will medicine in any community leave behind its superstitions and come to stand for a true utilitarianism, based on a right conception of the real meaning of progress.

## MEDICAL NOTES.

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES. — The fifth annual meeting will be held at Buffalo, N. Y., May 21, 22 and 23, 1895.

ANOTHER "FAITH-CURE" FATALITY. — The coroner at Dayton, O., has held Col. F. B. Mead and his wife to be responsible for the death of their twelve-year-old daughter, who was by them permitted to be treated by "faith-cure" methods, while she was suffering from tubercular meningitis.

THE PAY WARDS OF THE GREAT NORTHERN CENTRAL HOSPITAL. — At the annual meeting of the Great Northern Central Hospital of London, notice was given of the following resolution: "That this meeting of Governors of the Great Northern Central Hospital regrets the recent changes in the administration of the hospital by which pay patients have been admitted to its wards to be attended gratuitously by the honorary staff, and is of opinion that such a system is not likely to conduce to the welfare of the hospital or the advantages of the poor, for whom such institutions exist, and should, without further delay, be abandoned."

THE REPUTED EPIDEMIC AT LITTLE ROCK. — A physician of Little Rock, Ark., writes to the *Journal of the American Medical Association* to correct a statement recently published in that journal that 82 cases of small-pox and 14 deaths had occurred at Little Rock.

The writer states that Hot Springs is the place to which the figures refer, and says, "there is no smallpox at Little Rock, *but we have the legislature.*"

THE SAMARITAN HOSPITAL FOR WOMEN, MONTREAL.— A new hospital for women, with the above name, was opened by Her Excellency, the Countess of Aberdeen, wife of the Governor-General of Canada, on the 17th of January, 1895. It is non-sectarian, and supported entirely by voluntary contributions, of which latter, enough were handed in during the first month to carry on the work during a whole year. It is the only special hospital for diseases of women in Montreal, and will be moulded on the pattern of the New York State Women's Hospital in New York City.

MEDICAL LEGISLATION IN KANSAS.— The Kansas Medical Practice Bill was defeated chiefly through the influence of the Populists. In the House, according to the Kansas *Medical Journal*, Mr. Winters, a Populist member, said: "We Western people can't support your plug-hat doctors. We've got a lot of old women who are better than any of them." Kansas is certainly a most fortunate State, if its laws are to be made for it by legislators who are swayed by such arguments as that. The logic of Populism as applied to medicine is certainly consistent with that by which it settles financial and other questions.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, April 24, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 41, scarlet fever 32, measles 197, typhoid fever 3.

THE STATE BOARD OF HEALTH ANTITOXIN. — The Massachusetts State Board of Health has now distributed 150 packages of antitoxin to the authorities of several public hospitals and to boards of health and physicians for use in cases of diphtheria. The distribution began the 25th of March, and has been in all cases gratuitous. There has been a steady demand since the distribution was begun; but just at present, as commonly takes place in warm weather, the disease seems to be somewhat abating. The results so far reported from the use of this antitoxin have been uniformly favorable.

### NEW YORK.

THE COMMISSIONERS OF CHARITIES AND CORRECTION.— Considerable disappointment was felt in the medical profession that Mayor Strong did not appoint a physician as a member of the Board of Commissioners of Charities and Correction, in the place of Dr. Charles E. Simmons, as it was expected that he would do. The appointment that he made, however, was a very good one, namely, Mr. John P. Faure, whose name has long been associated with various charitable and philanthropic movements. For a number of years he has been Secretary of St. John's Guild, and he is at present Chairman of the Floating Hospital Committee of that organization. He is also Secretary of the Committee of Seventy (for political reform), and Chairman of the Board of School Trustees of the Ninth Ward.

THE PROGRESS OF SCHOOL REFORM.— School reform really seems to be making some progress. A notable instance is seen in the plans for a new public school building at the corner of Henry and Catherine Streets, in the crowded tenement district of the Seventh Ward, which were adopted at a recent meeting of the Board of Education. The school-house is to be provided with twenty shower baths in the basement for the free use of the children, and on the roof there is to be a play-ground with an area of ten thousand square feet. At a meeting of the Board of Estimate and Apportionment held April 16th, it authorized an issue of bonds to pay for a new school building in Harlem. When the comptroller announced that the plans included living rooms for the janitor and his family the mayor strongly objected, on the ground that the occurrence of contagious diseases in the families of janitors living in school buildings necessitated the closing of the schools, as in the recent case in East 35th Street. The comptroller agreed with him, and the Board ordered the plans changed accordingly.

EASTER AT BELLEVUE HOSPITAL.— On the day before Easter a number of ladies distributed two large truck-loads of potted flowering plants among the various wards of Bellevue Hospital.

AMALGAMATED TWINS.— On April 15th a German woman by the name of Koehler, under the care of Dr. Sigmund Tynberg, gave birth to female twins who were joined together by a pliable muscular band extending from the upper part of the spinal column to the coccyx. Together the children weighed fourteen pounds, one being about a pound and a half heavier than the other. This monstrosity is believed to be similar in character to the well-known "Millie-Christina" twins. The Koehler twins differ from the latter, however, in being able to face each other. Prof. Egbert H. Grandin, after an examination of them, expressed the opinion that they would live, but that it would not be safe to attempt an operation for separating the children.

DEATH OF DR. PRIMUS C. SMITH.—Dr. Primus C. Smith, a well-known dentist of Brooklyn, met a singular death on the night of April 19th. As his wife was going to bed he went into the kitchen to make himself a cup of tea. Mrs. Smith fell asleep, but awoke at 1 A. M., and not finding her husband with her, arose and went down stairs. In the kitchen she discovered his dead body, the head lying in a pool of blood. He had been subject to attacks of vertigo, and it is thought that he was seized with one while making his tea, and fell upon the stove. In doing so his head struck upon the sharp corner of the stove in such a position that the left temporal artery was severed, and as a result he bled to death.

## Miscellany.

### NUCLEIN IN DIPHTHERIA.

At a meeting of the Society for Medical Progress of the New York West Side German Dispensary, held April 14th, Dr. William Jacobson read a paper on the use of nuclein in the treatment of diphtheria and other contagious diseases. For the introduction of this agent (which is a normal constituent of blood-serum chemically represented by 49 parts of hydrogen, 32 parts of oxygen, 29 parts of carbon, and six parts of phosphorus), he said we were indebted to the researches of Prof. Victor Vaughan and Dr. Charles McClintoch, of the University of Michigan. Out of 200 cases of diphtheria, scarlet fever and measles, which were observed during several months, he claimed that there had been only nine deaths, and that in these cases the fatal result was due either to the fact that the nuclein injections were not made until the disease was too far advanced for any remedy to be of any service, to necessarily fatal complications, or to lack of proper care or other unfavorable conditions affecting the patient. The theory upon which nuclein was employed was that, as nuclein was found to a greater extent in the blood of healthy than in that of diseased persons, it was the real food upon which the blood tissues fed, and as such was nature's own antitoxin.

Nuclein was first tried on a girl four years of age, who was suffering from diphtheria. The agent was introduced into the system hypodermically and in a very small quantity. It was found that the temperature at first slowly rose, and then had a sudden drop. The pulse soon became normal, and in three days the child showed no sign of disease. The result was so successful that the treatment was resorted to in other cases, and with similar good results. "To treat fever," said Dr. Jacobson, "we must remove the cause, the toxines, and especially, as in contagions, the microbe and its poison. Nuclein is the substance to which the cell owes its resistiug power, and if present in sufficient quantity the microbe and its toxine are prevented from attacking the cell, and are ultimately destroyed."

### MORTALITY OF CHICAGO DURING THE PAST WINTER.

Dr. A. R. Reynolds, Health Commissioner of Chicago, compares the mortality of the winter quarter of 1895, ended March 31st, with the mortality of the corresponding period in previous years.[1] The comparison shows an increase of 27 per cent. in the total mortality of 1894. The total deaths from all causes during the quarter were 6,648 — an annual rate of 16.62 per thousand of 1,600,000 population; the average death-rate of the corresponding quarter for the previous ten years, 1885–1894 inclusive, was 19.10 per thousand; the lowest in 1894, 13.08 per thousand; the highest, in 1891, 23.40 per thousand. Acute lung diseases, complicated with influenza, are responsible for the increased death-rate. This group — pneumonia, bronchitis and influenza — shows an increase of 14.3 per cent., as compared with the winter quarter of 1894, and pulmonary consumption shows an increase of 12.5 per cent. The commissioner says that the prevalence of influenza has been more general than is indicated by the number of deaths (143) returned as from that cause. To its complications are to be attributed the great severity and fatality of pneumonia and bronchitis, as well as a large number of non-fatal cases of illness of masked or obscure symptoms which have affected the tone of the general health of the community and especially of the aged and enfeebled. It is, however, the unusual seasonal influences which have caused the increased death-rate, rather than the prevalence of influenza. The mean temperature for the month of January was 6.8° lower than the average January temperature of the previous twenty-five years, and the extremes ranged between 9° below zero to 51° above. During February the deficiency in temperature and the range of extremes was still more marked; the mean temperature was 10.7° below the normal, the accumulated deficiency of daily mean temperature at the close of the month was 50.4°, and the extremes ranged from 15° below zero on the 8th of the month to 61° on the 28th — a range of 76°. More than half the month was cloudy, or partly cloudy with an excess of humidity. During this month the deaths from pneumonia rose in number from 163 in January to 444, or nearly one-half of the total number for the quarter.

Concerning the small-pox, Dr. Reynolds says: "With the close of the first quarter of 1895, it seems to be entirely safe to say that the fourth serious — and at one time most threatening — visitation of small-pox upon Chicago is at an end. The disease has steadily declined since June, 1894, that is to say, from a period within thirty days after the great vaccination campaign was fairly inaugurated. That work is now conceded, both in this country and abroad, to be one of the most signal triumphs of preventive medicine on record, and a feat of sanitary administration without a parallel in respect of magnitude and diversity of population dealt with, of successful avoidance of overt opposition to the enforcement of health ordinances and regulations, and of direct results in the prompt check and ultimate suppression of the ravages of a pestilence."

[1] Journal of the American Medical Association.

### A SIX-DAY RECORD OF OPHTHALMIC SURGERY.

As an evidence of the very large amount of ophthalmic work occasionally done in a village district of India, we may place the following on record. A few weeks ago Surgeon-Lieutenant-Colonel G. C. Hall, F.R.C.S., Eng., surgeon to the Allahabad Eye Hospital, was called upon to operate on a patient in a village in the province of Oudh. The village was some twelve miles from the railway and twenty-six miles from any English station. No means were taken to let the people in the surrounding villages know of the intended visit of an ophthalmic surgeon to their neighborhood, but the news nevertheless spread. Surgeon-Lieutenant-Colonel Hall lived in camp. The natives arrived in various ways — some in bullock carts, having been four or five days on the road, from distant villages; some came on foot, led by others not quite so blind as themselves; others were carried on the backs of their relatives. A large number had no eyes left to be dealt with, but all had a large amount of faith. It was altogether an extraordinary and weird spectacle to see these poor, helpless people coming into camp in the early morning and quietly sitting down in groups patiently waiting until their turn came. During six days

the total number of patients seen was 394, the total number of cataracts extracted 69, and the total number of operations performed was 147. The operations were all done in the open air under the shade of a large mango tree, the patient lying on a native bed, the operator sitting at the head of it. As far as possible all the cases were treated antiseptically, and notes were taken of them with the prognosis formed at the time of operation. When Surgeon-Lieutenant-Colonel Hall left, which he did on the sixth day, a native assistant remained to look after the patients, to whom sixty-five pairs of spectacles have already been forwarded for the successful cases. We think our readers will concur with us in considering that the foregoing account records an enormous amount of hard and successful work of a most humane and philanthropic kind, of the accomplishment of which any one may well feel proud.

## Correspondence.

### THE CHARCOT MONUMENT FUND.

NEW YORK, April 20, 1895.

MR. EDITOR:— The following is a statement of the contributions to the Charcot Monument Fund, to date:

ST. LOUIS. Dr. E. B. Fry, $5.
SAN FRANCISCO. Dr. J. D. Hirschfelder, $10.
ROCHESTER. Drs. E. H. Howard, E. B. Potter, E. B. Angell, each $10; Dr. John D. Roe, $5.
BOSTON. Dr. Morton Prince, $25; Dr. F. C. Shattuck, $20; Dr. F. B. Greenough, $12; Dr. Geo. B. Shattuck, $10; Drs. Geo. L. Walton, Walter Channing, J. B. Ayer, J. J. Putnam, H. P. Bowditch, $5 each; Drs. H. B. Howard, R. D. Edes, $3 each.
NEW YORK. Dr. Graem Hammond, $10; Drs. S. T. Armstrong, H. Knapp, $5.
CONNECTICUT. Dr. Frank Hallock, $3.
Previously acknowledged, $642. Total, $813.

Owing to an oversight, the names of the following contributors (through members of the Committee) were not given for publication:

Through Dr. T. Diller, of Pittsburg: Drs. S. Ayers, J. W. Dixon, J. A. Lippincott, W. H. Daly, A. Fleming, F. Lemoyne, R. M. Tindle and J. S. Lange, each $5; Drs. G. G. Rahauser, C. C. Hersman, J. D. Thomas, D. C. Boyce, D. N. Rankin, J. D. Crombie, D. P. Miller, W. T. Burleigh, J. Milton Duff, W. H. Mercur, W. T. English, S. O. Brumbaugh, J. M. Brockerhoff, C. H. Voight, X. D. Werder, M. N. Gerhard, each $1. Dr. T. Diller, $2.

Through Dr. J. W. Putnam, of Buffalo; Drs. Chas. S. Jones, and Wm. C. Krauss, each $5.

Through Dr. Jas. Stewart, of Montreal: Drs. Wm. H. Hingston, E. P. Lachapelle, and Dr. Jas. Stewart, each $5. Dr. J. P. Pottot, $4.

The fund will be forwarded to Paris without delay.

C. A. HERTER, M.D., *Secretary*, 819 Madison Ave.

### DR. LEFFINGWELL TO DR. WOOD.

CAMBRIDGE, MASS., April 22, 1895.

MR. EDITOR:— The communication from Professor Wood does not, I think, require any reply from me. If I were to ask the further use of your columns, it would be only to express my wonder at the blindness that could again repeat an argument so completely answered a week before by your correspondent, Dr. Nichols; to doubt, whether in Great Britain the government inspection of physiological laboratories for the last eighteen years has been done by "spies"; and to thank you sincerely for the courtesy you have extended me. I am, sir,

Yours faithfully,

ALBERT LEFFINGWELL, M.D.

### METEOROLOGICAL RECORD,

For the week ending April 13th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r.* | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S.. 7 | 30.39 | 39 | 45 | 33 | 80 | 80 | 80 | S.W. | S.E. | 2 | 6 | O. | O. | |
| M.. 8 | 30.07 | 49 | 60 | 38 | 96 | 74 | 85 | E. | S. | 5 | 16 | O. | O. | |
| T.. 9 | 29.57 | 54 | 63 | 45 | 86 | 97 | 92 | S. | S.W. | 27 | 10 | R. | O. | .86 |
| W..10 | 29.74 | 44 | 51 | 36 | 62 | 47 | 54 | N.W. | N. | 24 | 19 | C. | C. | .10 |
| T..11 | 30.56 | 37 | 47 | 27 | 28 | 22 | 25 | N.W. | N.E. | 17 | 4 | C. | C. | |
| F..12 | 30.60 | 43 | 52 | 34 | 51 | 65 | 58 | S.W. | S. | 13 | 16 | C. | F. | |
| S...13 | 30.08 | 50 | 60 | 39 | 70 | 100 | 85 | S. | S. | 15 | 20 | O. | R. | .06 |
| ☞ | 30.11 | | 54 | 36 | | | 68 | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 13, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diarrheal Diseases. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,956,000 | — | — | — | — | — | — | — |
| Chicago | 1,640,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 422 | 102 | 7.64 | 21.84 | 3.12 | 3.36 | .48 |
| Brooklyn | 1,043,000 | 432 | 166 | — | — | — | — | — |
| St. Louis | 540,000 | — | — | — | — | — | — | — |
| Boston | 501,167 | 211 | 78 | 11.28 | 20.68 | .47 | 5.64 | 2.82 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 98 | 26 | 6.26 | — | 3.54 | 1.18 | 3.54 |
| Cincinnati | 325,000 | 115 | 29 | 14.49 | 20.93 | .86 | 5.52 | 1.84 |
| Cleveland | 325,000 | 14 | 30 | 9.56 | — | 1.09 | — | 4.34 |
| Pittsburg | 272,000 | 85 | 33 | 1.03 | 13.39 | — | — | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 34 | 8 | 5.88 | 32.34 | — | — | — |
| Charleston | 65,165 | 31 | 7 | — | 3.23 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 40 | 7 | 7.50 | 15.00 | — | — | — |
| Fall River | 92,233 | 29 | 18 | 14.40 | 14.40 | — | 3.45 | 10.35 |
| Lowell | 90,613 | 40 | 24 | 11.62 | 11.62 | 6.64 | — | 1.66 |
| Cambridge | 79,697 | 35 | 11 | 12.12 | 21.21 | 3.03 | 6.06 | — |
| Lynn | 68,123 | 17 | 6 | 29.40 | 5.88 | 11.66 | 5.88 | — |
| Springfield | 56,784 | 20 | 9 | — | 30.00 | — | — | — |
| Lawrence | 49,100 | 15 | 9 | 13.33 | 6.66 | — | — | 6.66 |
| New Bedford | 47,741 | 16 | 6 | 6.25 | 12.50 | — | — | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 9 | 4 | — | 33.33 | — | — | — |
| Salem | 33,155 | 18 | 0 | 16.66 | 5.55 | — | 5.55 | 5.55 |
| Haverhill | 32,925 | 10 | 4 | 10.00 | 15.00 | — | 10.00 | — |
| Malden | 30,209 | 10 | 1 | — | 20.00 | — | — | — |
| Chelsea | 29,406 | 11 | 4 | 18.18 | 18.18 | — | 18.18 | — |
| Fitchburg | 29,383 | 8 | 2 | — | 25.00 | — | — | — |
| Newton | 28,837 | 7 | 0 | — | — | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 7 | 2 | — | — | — | — | — |
| Waltham | 22,058 | 3 | 2 | — | — | — | — | — |
| Quincy | 19,642 | 9 | 1 | 11.11 | 22.22 | — | — | — |
| Pittsfield | 18,862 | 9 | 4 | 11.11 | 77.77 | — | 11.11 | — |
| Everett | 16,585 | 3 | 1 | — | — | — | — | — |
| Northampton | 16,331 | 3 | 1 | — | 33.33 | — | — | — |
| Newburyport | 14,073 | 6 | 0 | — | — | — | — | — |
| Amesbury | 10,920 | 2 | 0 | — | — | — | — | — |

Deaths reported 1,915: under five years of age 601; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 188, acute lung diseases 442, consumption 213, diphtheria and croup 72, scarlet fever 30, typhoid fever 28, diarrheal diseases 16, cerebro-spinal meningitis 14, whooping-cough 10, measles 6, malarial fever 5, erysipelas 4, small-pox 2.

From diarrheal diseases Brooklyn 6, Cleveland and Fall River 3 each, Lowell 2, Philadelphia and Nashville 1 each. From cerebro-spinal meningitis Worcester 3, Philadelphia, Boston, Washington, Fall River, Lynn, Somerville, Lawrence, New Bedford, Salem, Pittsfield and Clinton 1 each. From whooping-cough Brooklyn 4, Boston 2, Philadelphia and Cincinnati 1 each. From measles Brooklyn 3, Philadelphia, Boston, and Cambridge 1 each. From malarial fever Brooklyn 4, Nashville 1. From small-pox (Cincinnati) 1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 13, 1895, TO APRIL 19, 1895.

Leave of absence for two months, to take effect on being relieved from duty at Fort Huachuca, Arizona, is granted CAPTAIN RUDOLPH G. EBERT, assistant surgeon.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING APRIL 15, 1895.

GEORGE PURVIANCE, surgeon, detailed as Chairman Retiring Board for physical examination Officers of Revenue Cutter Service, April 8, 1895.

H. W. AUSTIN, surgeon, detailed as Member Retiring Board for physical examination Officers of Revenue Cutter Service, April 8, 1895.

H. R. CARTER, detailed as Recorder Retiring Board for physical examination Officers of Revenue Cutter Service, April 8, 1895.

A. H. GLENNAN, past-assistant surgeon, granted leave of absence for three days, April 9, 1895.

J. B. STONER, past-assistant surgeon, when relieved to proceed to Philadelphia, Pa., for duty, April 5, 1895.

G. M. GUITERAS, past-assistant surgeon, granted leave of absence for six days, April 5th and 8th, 1895.

J. C. PERRY, past-assistant surgeon, to proceed to Portland, Or., and assume command of Service, April 5, 1895.

J. M. EAGER, past-assistant surgeon, to proceed to Gulf Quarantine Station for temporary duty, April 5, 1895.

W. J. S. STEWART, assistant surgeon, to proceed to Philadelphia, Pa., for temporary duty, April 9, 1895.

SEATON NORMAN, assistant surgeon, to proceed to Norfolk, Va., for temporary duty April 9, 1895.

H. S. CUMMING, assistant surgeon, to proceed to Boston, Mass, for temporary duty April 9, 1895.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 20, 1895.

G. McC. PICKRELL, past-assistant surgeon, detailed from U. S. S. "Newark," home and two months' leave.

L. N. STONE, assistant surgeon, ordered to the U. S. S. "Newark."

C. H. T. LOWNDES, past-assistant surgeon, detached from coast-survey steamer "Hassler" and to Mare Island Hospital.

C. M. DEVALIN, assistant surgeon, detached from U. S. S. "Vesuvius" and to the U. S. R. S. "Vermont."

HOWARD SMITH, surgeon, retired, leave extended six months to remain out of the United States.

THE THIRD INTERNATIONAL CONGRESS OF DERMATOLOGY

Will be held in London, August 4 to 8, inclusive, 1896. A partial list of officers is as follows:

President, Mr. Jonathan Hutchinson.

Vice-Presidents for the United States, Dr. Duhring, of Philadelphia; Dr. White, of Boston; Dr. Nevins Hyde, of Chicago; Dr. Bulkley, Dr. Keyes and Dr. Fox, of New York.

Treasurer, Mr. Malcolm Morris.

Chairman of the Reception Committee, Dr. Radcliffe Crocker.

Chairman of the Museum and Demonstration Committee, Dr. Stephen Mackenzie.

Chairman of the Bacteriological Committee, Dr. Sims Woodhead.

Secretary for the United States, Dr. George T. Jackson, of New York.

Secretary-General, Dr. J. J. Pringle, 23, Lower Seymour Street, London, W.

REGULATIONS.

1. All duly qualified medical men, British or foreign, or others interested in science invited by the Council, who shall have paid the fee of £1 sterling, and who shall have enrolled themselves, shall be members of the Congress and entitled to the volume of Transactions.

2. The official languages of the Congress shall be English, French and German, but with the permission of the President, members may express themselves in the language with which they are most familiar.

3. The proceedings of the Congress shall be embodied in a volume of Transactions, edited by the Executive Council.

4. Communications relative to membership, papers, or other matters connected with the Congress, should be addressed to the Secretary-General, Dr. J. J. Pringle, 23, Lower Seymour Street, London, W., or to one of the Foreign Secretaries.

5. The fee for membership shall be payable in London, at or before the opening of the Congress. It will greatly facilitate the work of the Executive if the fee is forwarded as soon as possible after the 1st of May, 1896.

6. Members who are unable to attend the Congress shall receive the volume of Transactions.

7. The Subjects treated of shall be of two orders: (1) Those selected beforehand by the Executive Council and introduced by gentlemen chosen for that purpose by the Council. (2) Those selected by individual members themselves.

8. Subjects selected for debate by the Council shall take precedence over those selected by the members.

9. The sittings of the Congress shall take place from eleven to one in the forenoon, and from three to five in the afternoon, of each day.

10. There shall be clinical demonstrations of patients every morning from nine to half-past ten, and every afternoon from two to three.

11. Members contributing papers must submit an abstract of them to the Secretary-General on or before the 1st of May, 1896, which will be printed either in full or in part, and embodied in the general programme of the Congress which will be distributed at its opening.

12. At every debate precedence will be given to gentlemen who have communicated beforehand their intention to take part in it.

13. No papers lasting more than twenty minutes will be permitted. Speeches will be strictly limited to ten minutes each. MSS. of the papers read must be left with the Secretary-General before the end of the sitting. The Executive Council shall decide as to the entire or partial publication of such papers in the Transactions of the Congress.

## SOCIETY NOTICES.

MEDICO-LEGAL CONGRESS. — The Medico-Legal Society makes the preliminary announcement that it will hold a Medico-Legal Congress at or near the City of New York during the last week of August or first week of September, 1895 (time and place to be hereafter announced), open to all students of Medical Jurisprudence.

An enrolling fee of $3.00 will be required of each member to aid in the expenses and the publication of the *Bulletin* of the Congress, to be sent each member free.

H. W. MITCHELL, M.D., *President.*
CLARK BELL, ESQ., *Secretary.*

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, April 29th, at 8 P. M.

Dr. E. B. Lane will present a paper on the "Causes of Insanity." Drs. M. Prince, P. C. Knapp and G. T. Tuttle have been asked to take part in the discussion.

Dr. S. J. Mixter will report a case of "Meningocele; Operation; Recovery." Drs. G. L. Walton, A. T. Cabot and R. W. Lovett have been asked to take part in the discussion.

JAMES G. MUMFORD, M.D., *Secretary.*

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION, will hold its regular monthly meeting, this meeting being the last one for this season, on May 1, 1895, at 19 Boylston Place at 8 o'clock.

The subject for discussion will be "Penetrating Wounds of the Abdomen." Dr. James G. Mumford will present the subject in a short paper.

Dr. M. H. Richardson will report "A Case of Gun-shot Wound of the Kidney."

Dr. C. L. Scudder and Dr. H. Lothrop will give a *résumé* of cases of penetrating wounds other than gun-shot wounds up to date.

Dr. S. V. Goldthwaite will report and exhibit "A Case of Pyelo-Nephritis; Operation; Recovery."

Dr. G. H. Monks will show and report "A Case of Stab-Wound of the Abdomen," — wound of intestine, prolapse of bowel through wound, operation, recovery.

MEETING OF ACTING ASSISTANT SURGEONS. — A special meeting of the Association of Acting Assistant Surgeons of the United States Army will be held in Baltimore, Md., May 8th, during the coming session of the American Medical Association.

It is earnestly desired that every member of the Association will make an effort to be present, to consider matters of importance. By direction of the President,

W. THORNTON PARKER, M.D., *Recorder, A.A.A.S.*
GROVELAND, MASS., April 17, 1895.

## RECENT DEATH.

WILLIAM MASON CORNILL, M.D., M.S.S.S., died in Boston, April 14, 1895, aged ninety-four years.

# Original Articles.

## ACUTE INFECTIOUS PROCESSES IN BONE.[1]

BY ROSWELL PARK, A.M., M.D., BUFFALO, N. Y.,
*Professor of Surgery, Medical Department, University of Buffalo.*

That which the surgeons of past times used to speak of as "ostitis interna" has been of late years much more carefully studied, and is now usually spoken of as "osteomyelitis acuta seu infectiosa." This has been brought about largely by the labors of Chassaignac, who in 1853 presented a communication to the Académie in Paris, and whose labors were during the ensuing years ably seconded by Demme, Klose, Roser, Lücke, Kocher, and many others. As the result of their combined labors, there has been described a fairly typical form of acute infectious disease occurring beneath the periosteum, usually of the long bones — no bone of the body, however, being exempt; most common in early childhood, that is the period of the growth of bones — which has become now among surgeons and pathologists so well recognized that already it is called by numerous different names, none of which perhaps are more appealing, though perhaps more accurate, than Chassaignac's expression "typhus of the limbs."

When Piorry introduced the expression "pyemia," he made us acquainted with what he called "a purulent diathesis," which was supposed to be the starting-point of many of these infections, although both Piorry and Astley Cooper had stated that in malignant fevers, in chicken-pox, and after measles, the bones often underwent acute necrosis. Piorry also called attention to the connection between cases of osteomyelitis and pyemic manifestations, considering the former as illustrating frequently a spontaneous form of the disease. Later, Klebs found in the marrow of the femur and of the clavicle of a patient dying with osteomyelitis, numerous zoögloea masses, along with which were free spores and bacteria-like rods. In the lungs he found fat-embolism; in the kidneys the metastatic foci contained vessels filled with spores. From this case Klebs deduced that we might have an internal multiple inflammation belonging to the mycotic diseases and strongly resembling the septic processes of injured patients. Recklinghausen repeated their experiences, and Eberth determined that there were cocci swarming in the blood of a patient with osteomyelitis of the femur, which were the cause of secondary abscesses. Pasteur also separated from a case of osteomyelitis, operated on by Lannelongue, a large number of cocci, and cultivated them, so that later he identified them as similar to those found in furuncles. He, consequently, formally stated that osteomyelitis is a furuncle of the bone marrow. Thellier and Schueler also saw in the periosteum of inflamed bones and in their surrounding infiltrate, that similar microbes were collected in large numbers. One of the most positive advances in the etiology of osteomyelitis was made by Rosenbach and Kocher when they applied the then new method of isolation and cultivation of these organisms to the study of those which had been found in osteomyelitic cases. The names of some other observers are equally worthy of mention in this connection, although time may fail in which to give each the credit due him. But when one studies this subject, he will always find that the path of research has been made easy by the labors of Krause, Rodet, Garré, Kraske, Passet, Ribbert, Kohts and Golzi.

This disease—to various expressions of which I shall invite your attention—is generally at present known under the name of "acute infectious osteomyelitis." Or, inasmuch as its most prominent expression is sometimes found between the bone and the periosteum, it may also be known as "acute infectious periostitis." Anatomically, the activity of the disease may vary a little in location; pathologically, the condition is essentially the same. It is essentially an expression of an infection, although the path of infection or its source cannot always be determined. A great deal, however, can be done in every case by individual study.

I wish, first of all, to divide the disease into two forms, in accordance with the division which I have elsewhere made of the bacteria which may act to produce pus. In some lectures on "Surgical Pathology," published three years ago in the *Annals of Surgery*, I made a division of the pyogenic bacteria into the obligate and the facultative — the former being those whose functions seemed to be simply pyogenic and nothing else, which could always be relied upon to produce pus if time and opportunity were afforded them; and, the latter, those which seemed to produce pus only under certain conditions. The staphylococcus forms, with certain other pyogenic germs, seem to be in man always almost strictly obligate in their pathogenic activity. It is so with several forms of the streptococci. It is not so, however, with certain other forms which I group as facultative. Here may be reckoned, for instance, the typhoid bacillus, the colon bacillus, the tubercule bacillus, the pneumococcus, etc. Inasmuch as now I shall have to insist upon it that acute osteomyelitis may be produced by any one of these organisms, I must at once divide the cases into two groups, depending upon whether they are caused by the obligate or by the facultative pyogenic bacteria. Preferring to approach this subject from the pathological side first, I will first give a brief *résumé* of the organisms which are known to produce these diseased conditions.

In the first group, we have the staphylococcus pyogenes aureus, which is the form most commonly met with, and that which Rosenbach and Ogsten first studied in these cases. Next to this comes the staphylococcus pyogenes albus, generally supposed to be somewhat less virulent in its activities and met with less often than the aureus, the cases characterized by it running usually a somewhat milder and more prolonged course clinically. (The staphylococcus pyogenes citrus can be disregarded here.) Next there are certain mixed forms, where both (or several) staphylococci are met with. Next to the staphylococci come the streptococci. These vary much in their virulence, and cases due to these organisms may be very acute or may run a quite mild course. Cases are also met with where we have mixed infections with both coccus groups. Next to these comes, perhaps, the bacillus pyocyaneus. This organism does not seem to be ordinarily particularly virulent, although nearly all cases of suppuration characterized by its presence are known to pursue a tardy or a disappointing course. It is the organism which gives the peculiar blue or green tint sometimes seen in pus. It is said that there are two organisms closely resembling each other. Their re-

[1] Read before the Surgical Section of the Suffolk District Medical Society, March 8, 1895.

semblance is so marked as not to concern us here. The micrococcus tetragenus is an organism often found in the lungs of tubercular patients, it apparently being a frequent inhabitant of the human mouth and passing down into the pulmonary cavities with the saliva or other secretions. Some years ago I reported one case of abscess outside of the jaw bone in which this organism was the one principally at fault, the surface symptoms being somewhat peculiar, suppuration being prolonged and the induration about the abscess being hard and pronounced. Since then I have seen that others have noted the same peculiarities. Subperiosteal abscesses about carious teeth sometimes contain this organism.

It has been long noted by various observers, that occasionally during convalescence from typhoid there would be acute suppurations in the bones as in other parts of the body. In time past they have been explained as a sort of metastasis. Now, however, we know that in the pus from such abscesses we occasionally find typhoid bacilli and no other organisms. There are now on record a large number of cases of post-typhoidal abscess, within bone and without, which amply justify the statement that the typhoid bacillus of Eberth may be a facultative pyogenic organism. It is in typhoid also that we get numerous cases of mixed infection — as, for example, where we find pyogenic cocci and typhoid bacillus together, these cases for the most part running a more acute course.

Sequelæ of infection in bone after pneumonia are certainly rare; nevertheless, such cases have been reported — one case in particular by Ullmann (p. 42); also Hansen in 1877, and Achard in 1889.

That the pneumococcus, or diplococcus of Fränkel may be an active factor in the production of osteomyelitis and periostitis has also been very recently shown by Fischer and Levy;[2] also previously by Lannelongue and Achard.[3]

Efforts have been made by numerous authors to carry diagnosis to the point of determination as to the specific microbe at fault. Thus, according to Lannelongue, streptococcus cases always have an acute beginning, which, however, usually subsides if there be no general infection, pain increasing rapidly from the incipient symptoms. The skin becomes more red, and takes on an erysipelatous appearance, while the surrounding tissue is quite edematous. In staphylococcus cases the superficial veins become more distended and the lymph nodes are not so quickly involved. When these cases run a severe course they also begin quite violently, and the bone destruction is usually greater and more serious than in the streptococcus cases, in which sequestra usually form. Lannelongue and Achard also believe that prognosis of a given case can be based in a measure on this exact diagnosis. They hold that the staphylococcus forms are the most dangerous; the streptococcus forms next most so; while the mildest are those due to the pneumococcus and other forms. Nevertheless, too much stress cannot be laid upon these features, since the well-known variability in virulence in the same organism at different times plays a most important rôle.

After diphtheria there is but one case, so far as I know, at present on record; that is one reported by Pauli.

The other acute infectious diseases in the course of which acute bone affections are most likely to be met with are the following:

*Variola* — By several different authors, acute inflammations of joints as well as acute osteomyelitis has been noted during the course of this disease. Witzel, for instance, has seen necrosis of the lower end of the humerus during the course of variola, with multiple sequestrum formation also in other bones of the same patient. Fischer has reported a most violent and acute inflammation of the tarsal bones with extremely high fever, typhoid condition, and acute course, in complication with variola. After opening the degenerating mass, a quantity of pus was evacuated. From Kaschmir, Neve has reported three cases of acute necrosis; in each case the bone disease followed very quickly after the small-pox. The upper extremities were involved in each instance, and all finally recovered. Kolaczec has reported a case of multiple osteomyelitis with numerous sequestra in various parts of the body. The active pathogenic agent in variola being yet unknown, we are unable to say whether these cases should be considered as due to it, or whether they are not mixed infections, since in almost every instance the ordinary pyogenic organisms have been met with.

*Measles.*— Three generations ago, Sir Astley Cooper noted the frequency with which necrosis followed chicken-pox and measles. Similar observations have been made also with regard to scarlatina. Concerning the active agent in all three of these diseases, we are still in ignorance, although Babes inclines to the view that the entire scarlatinal process is a modified streptococcus infection. It seems, however, rather likely that the acute suppurative processes here are due to either secondary or mixed infections in which the streptococci play the principal rôle. In every instance with which I am familiar where suppuration has occurred during the progress of scarlatina, the ordinary pyogenic bacteria have been found in its products. Inflammations of bone marrow during and after scarlatina are by no means rare. In fact, in the experience of many surgeons, most of the cases of non-traumatic necrosis give a history of this inflammation following more or less quickly after scarlatina. Suppurative periostitis leading to acute necrosis is also quite common as a sequel of scarlet fever; and Kennedy has reported several cases of epiphyseal separation which he observed in Dublin during the years 1834 to 1842. That particular surface variety of necrosis affecting the alveolar process and resulting in loss of teeth, which was described so well by Salter, occurs very frequently during scarlet fever and measles. The disease affects children from the third to the sixth year, and begins with pains in the jaw, coming on within a few weeks after the cessation of the fever.

During the past few years, we have learned that the influenza or *Grippe* which has spread so widely over both continents may also leave its relics in the way of numerous surgical complications among which perhaps none are more frequent than those seen in the bones. Most of the reported cases, however, have concerned the periosteum rather than the bone marrow; but at least one most distinct case of this kind has been reported by Walker. A sequestrotomy was required, which had for its result the removal of the entire shaft of one tibia.

A study of osteomyelitis, made partly in the hospi-

[2] Deutsche Zeitschrift. f. Chir., Band xxxvi, p. 94.
[3] Cinquième Congrès Français de Chir., 1890.

tal and partly in the experimental laboratory, will give about the following conclusions: Osteomyelitis is a disease which can be experimentally produced in animals, to which end, however, it is necessary to introduce the organisms either into the circulation or into the bone marrow, and at the same time to inflict some quite serious injury upon the bone, by which its circulation may be disturbed. Unless this be done, one very seldom produces the disease experimentally. The disease is one which can be caused by more than a single organism, it being probable that all bacteria which have pyogenic properties can, in one way or another, be made to produce it. The organisms which are experimentally redeemed from these animals are the same as those introduced for the purpose of experiment.

In the human species, the disease is most commonly a staphylococcus infection, there being no doubt but that it is produced more often by these forms than by all others put together. There is ample reason to believe, however, that a variety of other forms may produce the same condition. The so-called "secondary osteomyelitis" is distinguished from the so-called "primary" in that in the former case the port of entry or path of infection is known, and in the latter it is not. Thus, in a case of furunculosis, we know that the bacteria have entered at that point where the furuncle is first met with, and to this an osteomyelitis would be secondary.

In studying this disease, it is most important, if possible, to make out the path of infection, since it is questionable whether any case is ever really primary, although it may appear so at first glance. In the great majority of cases, some lesion of the surface may be found — possibly very insignificant — such as a trifling abrasion, a hangnail, a bruise, or perhaps something more in evidence. One should then, if possible, convince himself that during, at least, several weeks previous to the beginning of the disease there have been no abrasions of the skin, canker-sores nor other lesions within the mucous membrane of the mouth, no styes, no bruises, no hidden ulcerations anywhere, through which bacteria might have penetrated. Kocher, for instance, has related a case where the disease in the bone seemed to follow fourteen days after a small furuncle on the right knee. Kraske has described an analogous case, where there had been a small furuncle on the lower lip of a young lad. Incision had permitted the evacuation of considerable pus. As the result of surgical attention, the lesion in the lip had almost completely healed, when suddenly the patient began to complain of intense pain in the ankle as well as in the pericardial region. In his case there quickly developed an osteomyelitis in the tibia and a pericarditis. Other abscesses subsequently developed in other parts of the body, and the patient died in a few days from general septic infection. In seeking, then, for the path of infection, there should be a most thorough and careful inspection of the entire surface of the body.

The next most frequent path of entry is through the alimentary canal; in fact, Kocher holds this to be that most commonly followed. It is now generally known that even through the unbroken mucous membrane of the intestine, the colon bacillus, and perhaps other organisms can pass. How much more then through lesions such as are permitted by typhoid ulceration, or those produced from other causes! In fact, when we remember that osteomyelitis can occur this way at all, it will seem strange that it does not occur much oftener as a sequel of typhoid.

The experiments which have been instituted by various writers with a view to settle this point seem to leave it as unsettled as ever. Kocher is a firm believer in the possibility of producing osteomyelitis after injury to the bone by feeding animals with the products of putrefaction. Ullmann has obtained just the contrary results. Nevertheless, the fact that acute osteomyelitis may really occur as the result of infection from the intestine seems to be proved quite positively by the studies of Kraske and others. Equally possible is infection through the respiratory organs, although of its absolute occurrence we are perhaps less positive. Kraske, Lücke, and others have reported cases in which it would appear that the pneumococcus can be disseminated from the lungs, and can produce an acute inflammation of this kind in bone tissue.

That congestion and disturbances of nutrition may be produced in bone and bone marrow by violent irritation or by appropriate chemical or mechanical means without the influence of bacteria, is unquestioned; but under conditions thus brought about there is no formation of that which is really entitled to be considered pus, while such experimental conditions lack all the characteristics of infectiousness, and in fact almost everything that goes to give them any really genuine or serious character. They are, moreover, conditions which are rarely, if ever, reproduced in clinical experience. So too, a number of experimenters have tested what can be done with cultures of various pathogenic organisms. They have all found that it is possible to produce a certain amount of disturbance, but not one of them has reproduced the clinical features of the infectious disease. From all of which, therefore, it most positively appears that osteomyelitis is an expression of localized suppuration within bone marrow or bone tissue. It is no more a specific disease than is an abscess. It is, however, always produced by micro-organisms, and can be experimentally reproduced only by working with them.

Before considering the actual causes of the disease as it is met in the human species, we must consider for a moment what predisposes to this condition. The combined influence of cold and wet seems to be that which more than anything else predisposes to an acute outbreak of this kind. As the result of the combined action of these two factors, we seem to have such local disturbances of circulation as to predispose bone marrow above all things to liability of infection. If in combination with this, we have injury or exhaustion and fatigue the disease is certainly invited. Lannelongue has spoken of certain professional causes which seem to predispose. The osteomyelitis of workers in mother-of-pearl has been particularly described by Gussenbauer, while workers in certain metals, and especially those who are concerned in grinding them, seem particularly liable. Another predisposing factor is the period of growth in the human organism and the peculiar circulatory activity that goes on in the neighborhood of the epiphyses of the long bones. So far as the influence of recent infectious diseases like those mentioned — namely, variola, scarlatina, etc.— goes, it is certainly open to question whether their influence is direct, or whether it may not really be explained by the mere lowering in vitality, which

every such severe infectious disease produces. Certain it is that the majority of patients who suffer in this way have not attained the twentieth year of life. Freund has collected 36 cases of post-typhoidal osteomyelitis, of which only two had reached the age of thirty, and 25 were under the age of twenty-five, 12 of those being below twenty.

### PATHOLOGICAL ANATOMY.

Kocher has made out three distinct stages through which most of these cases pass: First, the period of purulent infiltration with formation of local foci in the bone marrow, and speedy secondary involvement of the periosteum and synovialis. Second, the period of sequestration, or formation of a sequestrum inside of an abscess cavity. Third, the stage of repair.

*First Stage.*— During the first period there occurs first a most violent inflammatory infiltration of the bone marrow, which involves localized areas that become at first hyperemic, and then infiltrated with blood extravasation. This latter is indicative both of this stage of the disease, as well as of the intensity of the infectious process, since often during this period one finds enlargement of the spleen and hemorrhagic exudations in serous cavities, even at a distance, such as the pleura and pericardium. The locally affected areas of the bone marrow quickly break-down into depots of pus, which pus rapidly spreads in the worst cases either toward the epiphyseal line or else through the Haversian canals toward the periosteum, which it both infiltrates and loosens. This loosening of the periosteum is particularly marked about the diaphyses, rather than at the joint-ends, it being apparently looser in the former location. As a general rule, that end of the bone toward which the nutrient artery is directed is the one whose epiphysis is first loosened, while with the spread of the disease the other end may be similarly attacked. Nevertheless, about the knee it would seem as if the lower end of the femur and the upper end of the tibia are the particularly predisposed localities. Some authors have laid particular stress upon the direct influence of thrombosis and obliteration of nutrient arteries. There does not seem to be any sufficiently definite programme followed out in this regard, nor in the exact delimitation of the resulting sequestrum ever to permit the laying down of any definite rule. The separation of the periosteum usually takes place only over the portion of bone primarily affected, and the limitation of this process is a fair index of the extent of the deeper destruction. From the periosteum the inflammation either extends toward the covering soft parts, in which case we may have a parosteal abscess; or it perforates toward the joint cavity, so that we soon have a condition of empyema of the joint, as well as of destruction of its intrinsic structures. It would appear in many cases, especially in children, that the epiphyseal cartilage is the structure which brings this process to a halt, so that it is possible to have acute necrosis of a diaphysis of a long bone with perforation at both its epiphyseal ends. This appears to take place less often in adults; and, in fact, it is in adults that the joint-ends themselves are most often primarily involved. This is not meant to imply, however, that it may not be possible to get involvement of the entire length of a long bone, and practically total destruction of its structure. Softening and separation of joint cartilage is practically always secondary to the other process. In those cases which begin in the epiphysis proper, the disease is usually apparently primary in the joint, and is usually mistaken for some affection of the joint proper. In fact, epiphyseal separation occurs in some of these instances before men become alert as to what has really happened. If now patients survive the violence of what has been already described, there is shown a tendency toward encapsulation of the abscess, the formation of a sequestrum, and even the spontaneous separation of the same.

*Second Stage.*— The second stage is thus constituted: Almost coincidently with the occurrence of suppuration there takes place, around the limits of the acute infectious process, a proliferation of tissue, which may be regarded as an acute granulation process by which protection is afforded; and, if sufficient time is thus afforded, we have the rapid formation of new osseous tissue, produced by multinuclear osteoblasts, with which the affected bone is studded. So soon as this process begins there occurs also a lively absorption of material between the dead and the living tissue, by which even within a comparatively few days a considerable amount of loosening of necrotic tissue is produced. The second stage then, should the disease go so far, is characterized by production of a quantity of new tissue whose effect is to wall off the scene of conflict and death from the surrounding tissue. When once this has occurred, the prognosis, so far as the patient's life is concerned, is very much improved, although the local destruction may be very serious. The numerous abscesses within the infected area are likely to coalesce with time, and we may finally have as a result one long tubular abscess extending from one epiphysis to the other. Should there fail to be a distinctly significant connection, we shall at least find both the bone marrow and the spongy bone infiltrated with pus. If the periosteum has been separated, we shall then get a sequestrum whose dimensions correspond with those of the infected bone; should, however, the periosteum not be loosened, then the necrosis will probably be central and more or less circumscribed. The degree to which the rigid osseous tissues are capable of yielding under these circumstances is simply astonishing. It is in this stage that we have often those remarkable enlargements which occur within a comparatively short time, and produce most striking discrepancies in size between the healthy and the diseased bones. So long as the periosteum remains unbroken and unyielding, the pain, of course, will be intense and agonizing. Spontaneous subsidence of pain is practically an evidence of spontaneous giving way of tissue, by which tension is relieved. When this occurs, we will find almost always a similar yielding at the epiphyseal lines, the cartilage being rapidly melted down and converted into necrotic tissue. Epiphyseal separation may take place in any of the long bones. A similar yielding of sutures in the flat bones is also known, — for instance, a purulent diastasis of the tripartite suture entering into the formation of the acetabulum. Spontaneous yielding of the outer or inner table may also be seen in the sternum, or in the bones of the skull. One expects, of course, under these circumstances to find the joint structures sadly compromised, the capsule distended with pus or pyoid products, the cartilages ulcerated and displaced, the ligaments macerated and yielding, and usually the whole joint so compromised that its function is permanently lost.

*Third Stage.*—The third stage is the period of efforts at spontaneous repair. By a process of liquefaction in the direction of least resistance, there is a natural effort at elimination of the sequestrum. This may be a process extending over months, and may be accompanied by so much other disturbance as to completely ruin a limb or bone for further function. In neglected cases we often see several sinuses leading down toward the central sequestrum, each of which makes an effort in its direction to permit escape of that which nature is trying to eliminate. It is not to be held that pus has the property of destroying bone. The spontaneous disposition of bone under these circumstances is due to the action of phagocytes, the writer thinks, *in toto*. There may be some reason to think that cartilage left to float in pus may diminish in size; but bone, never.

Once the sequestrum be eliminated, an extraordinary amount of activity is usually displayed to fill up the defect thus left with granulation tissue, which shall subsequently become firmer, perhaps ossify. It is in this tissue that we are so likely to have a secondary tubercular infection, which shall undo finally all the good that nature unassisted might accomplish.

### SYMPTOMATOLOGY.

In a general way, the signs and symptoms of these infectious lesions in bone are common to almost all the varieties, and are extremely significant when only read and construed aright. We have already indicated that it is the young and the rapidly growing, also the marasmic who are, by virtue of said conditions, predisposed to attacks of this kind. Moreover, we have indicated that the most common causes are over-exertion, mechanical strain, and exposure. Granted that these conditions have conspired in the given case, the signs and symptoms will probably be about as follows: Patients complain first of exhaustion, followed quickly by pain that may speedily become agonizing. This is accompanied by an introductory chill with high fever, after which the general character of the disease rapidly assumes a typhoid aspect. Evening temperature may rise quite high, to be followed by some morning remission. The spleen is usually enlarged, the tongue dry, the bowels disturbed; frequently we have to do with a fetid diarrhea. The sensorium is affected and children usually early become delirious. The pain, which is at first vague, usually quickly focuses in that particular bone, or in those bones, which is or are to be the subject of the acute infectious process. As the pain increases in intensity we get a more and more significant tenderness, which becomes frequently exquisite. Usually before the tenderness is extreme, we get a characteristic reddening and swelling of the affected parts. With all these there will also be characteristic muscle spasm, by which certain posture signs will be produced, and there will be extreme pain when the peculiar positions thus assumed are even in the slightest degree disturbed. In consequence of this, the limbs — for this will usually be seen in the limbs — are drawn up; and every effort to overcome these flexures or contractures will be followed by intense pain. The more acute the process, the more vivid inflammation and edema of the adjacent parts. Thus it may happen that within forty-eight hours we have not merely swelling, but actual edema of the part involved. This edema should always be regarded as a pathognomonic sign when coming on in this way and with this rapidity, and may be practically always regarded as indicating the presence of pus in the depths beneath. Should, now, sufficient time have elapsed, we may in addition to the swelling, the edema, and the livid redness, get the fluctuation which will be afforded by parosteal abscesses, which is still further evidence of the infection going on within the bone. It is rare to have all this disturbance, confined within diaphyseal limits, without more or less participation of the neighboring joints. Of course, when the disease is primary in an epiphysis, the corresponding joint will be early involved. Here the symptoms and signs will not be different from those of an acute purulent synovitis; only in proportion as the bone itself is involved, we will have a much more significant degree of pain. Should a period of several days have elapsed before proper attention is given to such a case, it may be found that epiphyseal separation either has already occurred, or may occur on the slightest handling, such as is necessary for examination or operation. Not infrequently the pus evacuated from these cases is of foul odor, which appears to be often given to it by an admixture of putrefying fat masses.

So far only the symptoms peculiar to the bone affection have been rehearsed. It is necessary to add that to this picture, already often bad enough, we must append a further list of symptoms pertaining to the septic consequences of thrombosis and metastatic infections. Most unfortunately, this disease is frequently so acute and so rapid that even within the first day or two there is not only affection of the tissues comprising the bone, but extensive thrombosis of the veins either inside or alongside the bone, with purulent degeneration of thrombi and the rapid onset of the symptoms of genuine pyemia. To be sure, patients may die of septic intoxication before sufficient time has elapsed to permit of the formation of secondary abscesses. Yet that death may result from a true pyemia is only too well known. Other septic infections may occur in less classical manner,— as, for instance, septic pneumonia, metastatic meningitis, pericarditis, nephritis, etc. In fact, the writer scarcely recalls any apparently spontaneous infectious process which can be followed by death from so many causes, or which is so beset by dangers if not promptly attacked, as this under consideration.

So far but little attention has been given to acute infectious periostitis. Its causes are essentially the same; so also its symptomology and its possible dangers. There is only this to be said, that, as a rule, these symptoms and disturbances are a little less severe than those caused by infection within the depths of the bone; in other respects it runs a similar course, although spontaneous escape of pus, being more easily permitted by accident of location, is more likely to occur.

One need never be surprised in connection with these cases, to find other disturbances, either adjacent or distant, which in the absence of clear pathological views are quite likely to be misinterpreted.

With regard to the rapidity, of course, characteristic of this disease, one must acknowledge that all grades are met with between those fouldroyant cases which pursue a fatal course within thirty-six hours from the first sign of the disease, to others which pursue a much milder course, which extend over several weeks, and finally make a partially spontaneous recovery at

the expense of sinus formation, extrusion of sequestra, periosteal thickening, functional impairment of joints, and perhaps chronic ill-health.

Just here the writer would like to mention two or three illustrative cases, which he will very briefly report.

One case was that of a young lady of about twenty-two, who seems to have been taken with an acute infectious periostitis involving all the main long bones of both lower extremities, which quickly followed exposure during menstruation and consequent cessation of the menstrual flow. There was acute sympathetic involvement of all the lower joints; and she was treated for a number of weeks for acute inflammatory rheumatism. When, two or three months later, she came into my hands, there were found extensive collections of pus; and it was necessary to make long incisions over each femur and over each tibia, the incisions being nearly twelve inches in length, extending down to the bone, which was found denuded, the overlying periosteum being separated by more or less pus with some loose, unhealthy, granulation tissue. Here the radical use of the sharp spoon, combined with packing and repeated dressings, extending over a long period of time, finally secured the readhesion of the altered periosteum to the bone, of which, fortunately, none had died. Her limbs were left crippled, however, and she came near yielding up her life as the result of a mistaken diagnosis.

A girl of fourteen was taken with acute symptoms of the above general character, referred to the upper end of the left femur. These followed over-exertion. She also was treated for acute rheumatism; but, her symptoms becoming rapidly worse, she was put on the cars to be sent to the Buffalo General Hospital for suitable treatment. When she left her home, her limbs were of the same length; when she reached our hospital, the left limb was two inches shorter than the right. Spontaneous separation of the upper epiphysis of the femur had occurred as the result of the journey, and it was only by an immediate and proper resection with removal of the sequestrum, that is, the head and neck of the femur, that her life was saved.

A little boy of ten, enjoying the first good skating of the season, exerted himself to an extreme degree, sat down upon the ice to rest, got home in pain and with commencing fever, became delirious that night, and suffered intensely for a number of days with agonizing pain in one leg, which he would not allow to be touched or moved. He, too, was treated for acute rheumatism, although swelling and edema rapidly took place, with a tenderness disproportionate even to acute rheumatism. His life was spared; but he was treated for rheumatism until several sinuses had formed, and until the lower end of the shaft of the tibia began to protrude through an opening made for its spontaneous extrusion. The homeopaths who had charge of him finally acknowledged their incompetency; and the case was carried a hundred miles to Buffalo for treatment. Only one long incision over the shin was required in order to lift out from its bed the tibial shaft, entirely loosened, bathed in offensive pus, and its exposed end blackened by exposure to the air.

These, of course, are extreme cases; and yet I could make out a list of at least a score of them which have come under my own personal observation. The majority of these cases are met with in the lower extremity. Perfectly analogous or parallel cases, however, could be quoted in which the upper extremity was involved. In 141 cases, collected by Helferich, the tibia was involved in 66, the femur in 45, the humerus in 20, the radius in 6, the fibula in 4. This is a proportion which will be not widely departed from in the experience of those who have seen much of this disease.

It will be quite proper to stop here for a moment to speak of a similar infectious process involving the short and spongy bones, like those of the cranium, the tarsus and the carpus. While, to be sure, the affection is much rarer in these localities, it may pursue essentially the same course, as result of which we have periosteal separation, as well as speedy yielding and loosening of the ligaments which bind these small bones together, extensive swelling, edema, and later fluctuation overlying the affected area, while clinically the symptoms above mentioned will be repeated, varying only according to the part involved. There seems to be less tendency to pyemic disturbances or to wide dissemination of infectious products in these cases. In consequence, we hear much less of death in these instances. Locally, however, they may be equally destructive. These are the cases usually regarded as acute caries; but it is well to insist that their etiology is practically the same.

Cases of this general character which pursue a mild course are frequently the unknown causes, or at least the unrecognized causes of deformities which come later into the hands of orthopedists or of general surgeons for rectification. Subluxations, complete dislocations, deformity due to apparently spontaneous fracture — these are among the conditions met with, for which only clear pathological knowledge can afford an explanation. The so-called distention luxations are naturally spontaneous, and are in effect to be always explained by some process of this general character. These are met with particularly at the hip and at the shoulder. Another form of similar deformity is produced by first a loosening, later a regeneration along epiphyseal lines, as the result of which we have deformity simulating subluxation. Roser has described also another variety of luxation, permitted by an overgrowth of the restraining ligaments, which appears to be permitted by a protracted hyperemia due to active disease, as the result of which these ligaments become relaxed or elongated, with resulting condition much resembling that of an inflamed joint. Deformity is also produced by persistence of muscle cramp or contractures due to the violence of the acute disease. If these be allowed to remain too long unattended to, there will be fixation, also with more or less subluxation. Most serious joint deformity may be produced in this way. Again, by atrophy of certain groups of muscles, corresponding to the areas externally affected, there may be produced, at least, change in shape, with more or less loss of function and persisting deformity. Finally, deformity may be produced in still another way, by those actual disturbances of the growth of bones which may lead either to that form of atrophic elongation first described by Ollier, to which I have elsewhere devoted some attention, or to an absolute arrest of development by which a relative shortening of limb is produced.

One should perhaps stop here to rehearse some of the unusual or accidental incidents met with in some of these cases. We may have, for instance, subperios-

teal hemorrhages in the vicinity of the epiphyses, with perhaps complete detachment of the membrane. Just whence the hemorrhage comes is difficult to say, although the epiphyseal tissue itself may be intensely vascularized. Again, the periosteum may appear very differently along different areas of the same and involved bone. One may see it intensely congested at one place, and quite blanched or anemic at another. So one may find quite limited or small subperiosteal collections of pus; and it is worth knowing, that these may be distinct or multiple, and that to open a single collection does not necessarily imply that the entire trouble is thus relieved.

Along with the osteoperiosteal congestions, particularly the peri-epiphyseal or epiphyseal, one may observe also striking lesions among the neighboring muscles. Sometimes these are so circumscribed as not to be easily recognized. They may be even limited apparently to a comparatively small group of muscle fibres; they may consist of white points, or form white lines extending through the muscle tissue. Frequently the white points will be found to be minute collections of pus, but not invariably so. Sometimes the white lines represent linear abscesses, as though the path of infection had been limited to a given bundle of muscle fibres. Perhaps these signs are seen more often in the tibialis anticus and in the biceps of the thigh than in the other muscles. These muscular lesions appear at times to be something else than purulent degenerations. Such spots may even be found in the heart muscle in fatal cases, in which case the ventricular portions are those most involved. Here the condition is one rather of an acute myocarditis in limited patches. When these places are examined histologically, it will be found that we have to deal with an interstitial inflammation, extending sometimes into a genuine suppuration, sometimes stopping short with tissue necrosis.

In the liver and the kidneys, miliary disseminated white patches are often found. The lungs are seldom primarily involved; they may show hemorrhages, or conditions of that character.

Still another rare event, but one several times noted, to which allusion has been made especially by Gangolphe and Devars is the possibility of epitheliomatous degeneration of the fistulous passages remaining after spontaneous evacuation of some of these collections of pus. The cancerous process seems to begin at the external opening, and to extend slowly down toward the medullary depths.[4]

[4] The malignant degeneration of osteomyelitic foci has been recently quite elaborately dealt with by Devars (De la Dégénérescence Cancroïdale des Anciens Foyers Ostéomyélitiques, Thèse de Lyon, 1894), who reaches, briefly, the following conclusions:

The fistulæ persisting after osteomyelitic attacks are occasionally the site of malignant degeneration, the epitheliomatous being the most common of all the forms. This seems to be, perhaps, another expression of the well-known fact that old ulcers and cicatrices take on the same kind of degeneration, the form under consideration being either an internal extension or manifestation of the same lesion. These foci do not appear equally susceptible, nor to the same degree. Old tubercular granulations give place to papilliform vegetations, which are frequently difficult to separate — at least on first appearance — from the lesions of an epitheliomatous ulcer. Malignant degeneration occurs not infrequently in the cavities containing sequestra, which are also emptied by persistent fistulæ. Devars has collected 39 cases of intraosseous epithelioma, most of the patients being in the middle years of life when attacked.

These epitheliomata appear sometimes as primary lesions, sometimes as secondary; in other words, they quickly succeed to the original trouble, or they develop by slow processes, as in the old ulcer. They develop always slowly, and may produce lesions quite concealed from external view. Secretions from these sources have usually a peculiar fetid odor, which to those familiar with it may even be diagnostic. As in all malignant neoplasms, the course of the disease is unfavorable. Nevertheless, the prognosis is not so bad in and of itself, so far as life is concerned, although it necessitates the ablation of the limb. If, on the other hand, some bone of the trunk be involved, the prognosis is bad in every respect. In most of the cases the neighboring lymph nodes are involved. If not soon treated after this has occurred, prognosis is naturally worse.

Treatment must be thoroughly radical, amputation, if possible, being the only resource; and Devars has found a fair percentage of his recorded cases apparently cured by this measure. The entire thesis is well worthy of study.

Gangolphe has also called attention to the horrible fetid character of the discharge from some of these cases, which persists in spite of irrigation and of all but the most radical measures. Although this has not yet been worked out bacteriologically, it is probable that this fetor is due to the activity of some extraneous organism belonging to the class of saprophytes.

Another phenomenon noted in some of these cases has been a peculiar eruption such as we see during other infectious diseases — an evident manifestation of septic poisoning, consisting usually of wine-red plaques, sometimes raised above the surface as in urticaria. These points are not painful; they disappear under pressure, and run a very variable course. It was in 1858 that Guebler first called attention to the existence of these eruptions, which have since been studied by many investigators. In October of 1892 Bouchard announced to the Académie de Médecine the existence in cultures of the microbes which often cause these conditions, of two toxines, which he called "ectasine" and "anectasine," by reason of their peculiar vasomotor action. The first promotes vascular dilatation and diapedesis; the second paralyses the vasomotor dilators. Curiously, these two substances, of such contrary effects, seem to be produced by one and the same microbe, namely, the bacillus pyocyaneus. It is known also, as Arloing has shown, that the filtered cultures of the staphylococci contain a toxine which is a vaso-motor excitant. Gangolphe holds that the peculiar eruptions seen in some of these instances are particularly due to the effects of these particular toxines.

I have not yet mentioned fat embolism as one of the complications of the fulminating forms of these bone infections. The possibility of its occurrence, however, must not be forgotten; it is not frequent, but its gravity is extreme when it occurs. The first evidences of occurrence of fat embolism will probably be met with in the lungs, in the shape of rapid and embarrassed respiration. Lannelongue has insisted on certain other pleuro-pulmonary complications occurring usually during the third or fourth day of this disease, it being possible to have a unilateral (even a bilateral) pneumonia complicated possibly with adhesions; running an atypical course; frequently, but not necessarily, fatal; of short duration; not materially influenced by ordinary methods of treatment.

Albuminuria is also a not infrequent complication, while effusions in the pericardial or pleural sac occur sometimes without any warning whatever.

One of the most striking phenomena in connection with this disease pertains to the recurring character of certain cases. There is every evidence, both experimental and clinical, now at hand to prove that, particularly in the bones or beneath the periosteum, is it possible for collections of micro-organisms to lie latent or dormant for more or less long periods of time, their activity being re-awakened by accident, or by coincident infection, or by that lowering of vital resistance which is so often seen in connection with wasting disease or starvation; and there are clinical cases on record to prove that there have been concealed in the bone for twenty years such collections of organisms,

which retain their virulence but hold it in a latent form. We have little to compare with this except the known properties of tubercle bacilli; and I know of no other disease in which this outbreak is anywhere nearly so striking as in the cases here alluded to. I have repeatedly seen instances which amply convinced me of such possibility. For instance, they give a history such as this: A young lad goes through an attack of acute osteomyelitis of the tibia. The disease often, if early recognized and operated on, apparently subsides; the limb heals with considerable scar, and everything goes well for years, until during an attack of scarlet fever, or typhoid, or after a fracture or some other untoward event, the old bone area becomes again sore, a fresh bone abscess is formed, and perhaps requires a repetition of the previous operation. Or, if this does not occur at exactly the site of the previous trouble, it occurs in the same bone within a short distance. I have at this moment in mind a young woman upon whom I have four times operated within a few years for this trouble, breaking out each time in a different portion of the left tibia, whose leg when I first saw her was already extensively scarred with the results of previous similar manifestations. This does not depend upon my evidence alone, but has been spoken of independently by several different writers. I have no explanation to offer for it, but desire to insist upon the clinical recognition of the fact.

It may seem somewhat at variance with the generally received ideas of the activity of micro-organisms which can produce such virulent disease, to think that these activities may be so long held in abeyance in certain instances. For the argument of diminished virulence of bacteria, we have as yet no satisfactory explanation; but there is nothing stranger about their capability of retaining the power of life and growth for years inside the human body, than there is in the fact that grain from the ancient Egyptian burying places should retain its power of growth when planted to-day.

### SPECIAL FORMS.

Let us pass now from general considerations to a hurried consideration of two or three distinct or special forms. It is well worth our while to ask whether the different organisms which may produce this disease may call forth any such distinctive features, clinically or pathologically, that one may recognize their individual presence; in other words, whether special features may be assigned to distinct organisms. We are not yet in position to answer this elaborately, and yet certain things we may affirm. For instance, those cases of acute bone infections which occur during puerperal fever, or in conjunction with erysipelas in other parts of the body, are in almost all instances due to the streptococcus. The forms which are due to the pneumococcus are distinguished rather by a predominance of joint complications and by a lesser tendency to subperiosteal abscesses or to sequestrum formation; while clinically their course is more rapid, their symptoms more acute, and, when recovery follows, their duration is relatively short, while they show a prompt tendency to cicatrization and repair. This form may occur not alone during the course of a pneumonia, but even without pneumonia and without traumatism, as a manifestation of primary infection. The forms due to, in whole or in part, the presence of the bacillus pyocyaneus are more likely to show the peculiar eruption already spoken of, while the odor from the discharge of these cases is usually pre-eminently unpleasant. Of the staphylococcus forms, or those mixed with streptococci, it is hard to state anything very definite. The staphylococcus aureus seems to be the organism at fault in the most rapid and malignant cases. Nevertheless, they may be found in the milder, although here usually with some other forms in combination. It would seem that in the post-febrile cases — for example, those following typhoid or scarlatina — we are more likely to meet with the streptococci alone or in relative abundance.

I may add to this statement another, that whereas in 1883 Rodet described an organism of osteomyelitis which was for three or four years separated and given an identity of its own, we now know that this was an error, and that the organisms which he found were simply those now recognized as so common, namely, the staphylococci.

Of the cases following typhoid, variola or diphtheria, I have nothing to say in particular, save that they do not necessarily go on to destructive suppuration. Multiple periostitis with considerable thickening is one of the rare complications of typhoid. One such case I recall in my own practice: Some years ago a young lad had nearly convalesced from his typhoid fever, when he was taken with symptoms to which I was at that time at first a stranger. These proved to be evidences of most painful inflammation of the periosteum covering the long bones of both lower extremities, extending upward, apparently by continuity of tissue, over the pelvis, and even up onto the lumbar vertebra. A more appealing picture of distress or of anxiety lest somebody should rudely jar his bed, or step heavily in the room, I have never seen and cannot imagine. This was my first introduction, years ago, to the surgical complications of these continued fevers, since which I have, of course, seen many illustrations. His periosteal complications ran a somewhat prolonged course without even a sign of the presence of pus, and his tenderness slowly subsided until, finally, he was able to use his limbs again. This will be the probable general course of certain cases occurring during these continued fevers and exanthemes, and I need scarcely say more about them.

The one particular form which I wish to describe, in addition to what has been already said, is that which finds description, or even allusion, in very few works, or even careful monographs and general articles. It is a form to which my attention was first called by the writings of Kiener and Poulet, and should be known as "acute tubercular osteomyelitis." It might also be called "acute tubercular panostitis." It corresponds to the ordinary forms of tubercular ostitis as do the most rapid and destructive miliary forms of pulmonary tuberculosis to the ordinary cases of consumption. There is no doubt but what the entire bone marrow, and, in fact, the entire integrity of one or more bones may be destroyed as rapidly as that of the lungs. It is a type of disease which runs a most acute clinical course, though never fulminating, which is equally destructive but less painful, in which there are perhaps more external disturbances with less tenderness than in the ordinary suppurative forms of this disease. The periosteum is likely to be more thickened, and we are quite likely to have more edema and swelling of the entire limb. Some years ago I had to amputate at the shoulder-joint an arm, all of whose bones were in-

volved in the most acute thinkable process of this kind. Why the condition did not disseminate I do not pretend to explain; but I would say that with the removal of the upper extremity, the patient quickly recovered and regained his usual health. On dividing the bones, one had in this specimen the most beautiful and typical picture of acute miliary tuberculosis of the bone marrow and the spongy-bone structure. I take particular pains to bring this form before you, because I know that it has received very insufficient description, and I am anxious that the possibility of this rare condition should be borne in mind.

### DIAGNOSIS.

I need say but little in regard to the diagnosis of this type of disease in addition to what has been already said. I have deliberately reported a number of cases mistaken in the early stages, or until too late, for rheumatism. In my experience, the average general practitioner nearly always makes this mistake; and it is particularly to warn him against it that I would disseminate such information as is contained in this paper. To the best of my knowledge and belief, rheumatic conditions never suppurate. In nearly all of the cases to which I have called your attention, suppuration occurs early, sometimes very promptly; and by this means alone it would seem as if error in diagnosis could be avoided. It scarcely seems necessary to go into an elaborate differentiation between the two conditions because I am confident that this mistake has so often occurred simply from ignorance of the fact that we have such a condition as infectious osteomyelitis of acute type, and I do not wish to take up your time.

### TREATMENT.

There is but little to be said concerning treatment, but it needs to be emphasized with all the power possible. We have in these forms of disease acute infections whose tendency is toward tissue destruction and suppuration within deep and pent-up cavities. The intense and agonizing pain which characterizes most of them is caused by the fact that this excitement is going on in spaces enclosed by rigid walls, while the generally grave nature, the sometimes overwhelming typhoidal character of the symptoms is due to the intensity of the process, the extreme toxicity of the bacterial products — in other words, to the intensity of the auto-infection; and the frequently grave and often fatal complications are due to the anatomical relations of the veins and lymphatics coursing through and alongside of the bones. With all the emphasis that I can bestow, I want to urge that the treatment of these cases be essentially surgical and promptly so. Remember that death has been known to occur within thirty-six hours from the first unpleasant symptom, and remember that this might have been avoidable had operation been performed within the first twelve hours. What now is necessary? Anesthesia, and incision with a firm hand, not merely through the skin, but to the bone, and by all means through the periosteum. These incisions can usually be made at such points of election as shall cause a minimum of disturbance to other important structures; but it may be necessary to expose the shaft of the tibia, for instance, from one end to the other by an incision extending from knee to ankle, which shall freely expose the bone proper; and if here ample explanation be not afforded for the intensity of the symptoms and pain — explanation in the shape of exudate, of pus, or of infectious products — then the bone itself must be opened with the same freedom and the same purpose in view. These are cases where, after exposing the bone, it is perfectly justifiable to use a large bone drill to perforate at different points into the marrow cavity, as one would introduce the hypodermic needle into the soft parts, searching for pus. The thickening that may occur even within a few days will sometimes be astonishing. One need never hesitate to go with a sterilized drill into the depths of every accessible bone. So soon as anything but healthy bone marrow be revealed by these punctures, the chisel should be substituted for the drill, and the medullary cavity should be widely and mercilessly exposed. Ordinarily pus will be forced out through the drill opening even before the withdrawal of the instrument. With this guide, the chisel should be used until every pocket of pus has been widely opened and until sharp spoons and irrigator nozzles can be introduced freely, so that the parts can be absolutely cleansed from all pent-up suppurative products. It may possibly be enough to open the medullary cavity of a long bone near its upper epiphysis, and then near its lower; and then to draw through this instruments or plugs by which it can be thoroughly cleaned out. But, when once the patient is anesthetized and this procedure has been begun, the surgeon should never stop until he has completely evacuated every particle of infectious matter. The same is true of parosteal abscesses. One who is not familiar with these cases can scarcely conceive of the relief to pain which is hereby afforded, nor of the conversion which is so speedily effected of a grave septic case into one of mere extensive and open incision, but with the parts so exposed that there can no longer be any possibility of retention of pus or resorption of poisonous products. The cavities thus made are left widely open, it being much safer to allow them to heal by granulation than to attempt to close them prematurely. Extensive scars result from such radical operation; but not only are lives thereby saved, but limbs in more or less shapeliness, and joints in completeness of function, which would otherwise be lost — hopelessly lost.

Note. — The interested reader is referred especially to the monographs of Ullmann, "Beitrige zur Lehre der Osteomyelitis Acuta" (Wien, 1891), with its admirable bibliography; and Jangolphe, "Maladies infectieuses et parasitaires des Os" (Paris, 1894); also to an article by Garré, "Einige seltene Erscheinungsformen der akuten infektiosen Osteomyelitis," in Kocher's *Jubiläum Festschrift*, 1891, p. 43.

## A SELF-RETAINING DRAINAGE CANULA FOR PREVENTING SCAR IN CERVICAL ABSCESS.[1]

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In the treatment of abscess of the neck, the avoidance of resultant scar is of great importance to the individual. While a scar in other parts can be disregarded, the exposure of the neck to constant inspection, and the undue prominence here of any appreciable scar, gives an additional consideration; for we have to consider not only the question of effecting a cure, but also that of leaving the least possible scar as a result.

Two years ago, the writer [2] reported three cases of

[1] Shown with five cases at the meeting of the Boston Society for Medical Improvement, February 4, 1895.

[2] Boston Medical and Surgical Journal, January 17, 1893, p. 34.

large cervical abscess treated by making the cut from one-fourth to three-eighths of an inch in length. The result was a cure with a little scar in two cases, and three small round cicatrices in one case. This latter was an extensive, suppurating cervical adenitis, extending from the ear to the clavicle, on one side, in an otherwise healthy male adult. Three short cuts were made at various times, as necessary. At one period of the case the neck was full of branching sinuses, which were treated by a method which will be spoken of later. After a tedious treatment of over three months, healing finally took place, and the man now has three imperceptible scars. He has been, and is, in fine physical condition.

Since the above report I have followed out the same treatment in similar cases. The results have been good, but there has been one defect in the method. In most cases the skin heals, but the abscess cavity does not. The cavity refills (usually with a serous fluid), and frequent reopening of the cut may be necessary before healing finally takes place. This has been a serious objection, for healing is delayed by the constant refilling of the abscess, and the patient naturally objects to a, perhaps, daily cutting.

As scar is limited to the cut through the skin, it follows that the shorter the cut the smaller the scar. Where skin unites by first intention, it not infrequently shows a slight line of cicatricial tissue; where it heals by granulation the amount of cicatrix is often large, and where, as is sometimes the case, the cicatrix hypertrophies and we have the keloidal scar, the disfigurement may be very decided.

If, in treating an abscess, a cut is made dividing the whole, or nearly the whole of the inflamed area, the contents evacuated and the cavity packed, we are doing all that can be done to bring about healing by granulation, and are doing just that which *will* leave a scar. The treatment of abscess is a question of drainage; and the reason why a long cut is effective is because it gives free drainage. If drainage is the only consideration, such treatment is unquestionable; but if the resultant scar is to be considered, it is bad treatment. When we see, as we do, necks covered with old cicatrices, some depressed, some bunched in keloid, usually of a different color from the rest of the skin and always a disfigurement to the individual, certainly any treatment which cures the condition and which prevents such a result is very much to be preferred.

Aspiration and setons are two methods which have been used with the object of avoiding scar. Having had no personal experience with either of them, I can only say, on general principles, that aspiration drains at once, but does not give subsequent drainage, and that in many cases this is essential before healing can take place; that a seton drains partially, but that the drainage cannot be as free as is often necessary; and that both of these methods consider only one point — the scar — but do not dispose of the other, the very important question of drainage.

I have recently had Messrs. Leach & Greene of this city make a little instrument which covers both of these points satisfactorily. This is a self-retaining drainage canula and is as shown in Figures 1 and 2. It consists of two surfaces of silver, curved laterally, bent outward, and jointed at the angle. The cut through the skin being made (one-eighth of an inch), the knife is pushed into the abscess. Upon its withdrawal the canula is inserted, as in Fig. 1. When the joint is reached the external arms are closed. This reverses it. The internal arms open, dilating the tissues in the vicinity of the cut and retaining the canula within the cavity, while the external arms come together and make a tube (Fig. 2). A projection at the end of each external arm prevents it from falling into the abscess cavity, and it is fixed *in situ*. It is removed by seizing one of the external arms and withdrawing it until the hinge is reached, when, by spreading, it is again as in Fig. 1, and easily slides out.



FIG. 1.



FIG. 2.

The canula can be cleaned and sterilized, and gives free, continuous, and, if necessary, permanent drainage through a skin cut of barely one-eighth of an inch. It reduces the cut to an undoubted minimum, gives surgical drainage, and leaves the least possible resultant scar.

Of the following thirteen cases, all but two, were treated at the Boston Dispensary during my recent service there.

| No. | Diagnosis. | Location. | Canula Inserted. | Canula Removed. | Canula Reinserted | Time in Healing. | Age. | Remarks. |
|---|---|---|---|---|---|---|---|---|
| 1 | Multiple glandular abscess<br>Ditto (same patient). | Side of neck<br>" " | Dec. 14th<br>Jan. 16th | Dec. 17th<br>Jan. 19th | Jan. 16th<br>.... | 15 weeks<br>.... | Adult | |
| 2 | Single glandular abscess | Side of neck | Jan. 16th | Jan. 19th | .... | 7 days | Child, 1 year | |
| 3 | Multiple glandular abscess | Front of neck | Jan. 29th | Feb. 2d | .... | 10 days | Boy, 16 years | See cuts. |
| 4 | Non-glandular abscess | Back of neck | Feb. 1st | Feb. 5th | .... | 7 days | Adult | |
| 5 | Single glandular abscess | Side of neck | Feb. 2d | Feb. 5th | .... | 6 days | Child, 3 years | |
| 6 | Multiple glandular abscess | Side of neck | Feb. 4th | Feb. 11th | Feb. 14th | .... | Adult | Case disappeared. |
| 7 | Multiple glandular abscess | Both sides of neck | Feb. 5th<br>3 canulas | Feb. 8th | .... | 1 side, 10 d.<br>1 side, 21 d. | Child, 1 year | |
| 8 | Non-glandular abscess | Back of neck | Feb. 9th | Feb. 12th | .... | .... | Adult | Case disappeared. |
| 9 | Single glandular abscess | Side of neck | Feb. 15th | Feb. 18th | .... | 6 days | Child, 6 mos. | |
| 10 | Non-glandular abscess | Back of neck | Feb. 27th | Feb. 28th | .... | 14 days | Adult | |
| 11 | Multiple glandular abscess | Under ear | Feb. 28th | Mar. 1st * | .... | .... | Girl, 18 years | Still under treatment. |
| 12 | Single glandular abscess | Side of neck | Mar. 2d | Mar. 4th | .... | 6 days | Child, 3 years | |
| 13 | Non-glandular abscess | Back of neck | Mar. 5th | Mar. 7th | .... | 7 days. | Adult | |

* By patient — see notes of case.

From these cases it will be seen that abscess of a single gland, and simple, non-glandular abscess healed in one week or less. (Case 8, which disappeared after the canula was removed, undoubtedly healed in a few days, for the abscess was progressing as favorably as any of the others at the last visit.)

Case 3, whose photographs showing the appearance before and after treatment are here given, had, as will be seen, a multiple glandular abscess involving the front of the neck. The whole cavity was emptied and drained through one canula, inserted at D, and healing followed in ten days, leaving a slight inflammatory hardness, surrounding and defining the limits of the original triple-walled cavity. This slowly disappeared, and a second photograph taken two months later shows his present conditon. There is no scar. Knowing where the canula was inserted, I can detect, by the most careful inspection, a very minute white line; but no one, who did not know the point of insertion, could distinguish it from the trifling blemishes which the patient has on other parts of his face and neck.




Abscess before evacuation



Same case two months later.

I have encountered the greatest difficulty in the multiple glandular inflammations, where the glands are only partially broken down. In the treatment of such cases there is a very important question for consideration, namely: Should these glandular masses be thoroughly excised at once, or is the surgeon justified in waiting?

The writer hopes to discuss this question in a later communication; but it is beyond the scope of the present paper to do more than refer to it, and to give the clinical history of five such cases treated upon the theory that immediate excision is not necessary. These are Cases 1, 6, 7 and 11, and the case already referred to as reported two years ago.

This latter was a case of gradual, extensive breaking down of both superficial and deep glands on one side of the neck in an otherwise healthy individual. I allowed the process to take its course, making short incisions when indicated, and effected a cure with no scarring. This man has been perfectly healthy since, and there is no reason to think that he will not continue so.

Case 1 of the above table was similar, but not so extensive. Three superficial glands and some of the deep ones were involved. The total inflamed area was about two and a half inches in diameter. As this case is illustrative of the various points to be considered, I will describe it in detail.

The patient, female, age twenty-five, married, and the mother of one healthy baby, presented herself at the Boston Dispensary, December 7, 1894, with a large inflamed glandular mass on the left side of the neck, over, in front of, and behind the sterno-cleido muscle. She had first noticed it about three weeks previously. December 14th pus was present in quantity, and a canula was inserted at the thinnest point. It was removed December 17th, and from that time on for fourteen weeks there was the same tedious treatment that I think must be necessary in all similar cases treated by this method. The cavity closed down to a deep sinus, which discharged a small quantity of pus daily, and which showed no tendency to heal.

January 16th. Pus had formed at another point about one and a half inches distant from the first incision. I inserted a canula, and at the same time reinserted a canula in the original opening.

January 19th. Both canulas were removed. The second cavity slowly closed down to a sinus which connected with the first by a deep and tortuous tract. The connection was shown by injecting corrosive solution; when thrown into one opening, it came out of the other. The probe went in for about two inches, but could not be made to follow round through the connecting passage. The sinus ran well under the sterno-cleido mastoid.

February 7th. I treated the sinuses by the same method that I had previously used and with equal success. It consists in rapid but gradual dilatation with olive-pointed urethral bougies, curetting the sinus thoroughly, and giving injections later. I started with a No. 11 bougie and went up, one after the other, to No. 15. This went through with considerable pressure. I then introduced a small, sharp curette and scraped the lining walls on all sides. Iodoform and oil was injected.

February 9th. Tincture of iodine was injected into each sinus. This was followed by a sharp inflammation and profuse suppuration, but it had the desired effect. There was a free discharge of pus for about seven days, which then gradually diminished.

February 25th. Another abscess had formed lower down on the neck. It was superficial and healed very quickly. The canula was left in for three days.

The case showed final healing, that is to say, complete closure of sinuses, some fourteen weeks after the first canula was inserted.

April 7th. The patient reported for inspection. There were two, small, depressed, scarcely noticeable scars, which I think will be almost invisible in a few months.

Case 6 disappeared at the end of five weeks, not cured. This was a case of a small mass of partially broken-down glands, back of the sterno-cleido. At the last visit there was a deep sinus.

Case 7, a child, age one year, had both sides of the neck entirely filled with inflamed glands. I first saw her February 5th, when the glands on the left side were wholly broken down; those on the right side partially so. Two canulas were inserted on the left side and one on the right side. They were removed three days later. Healing occurred in ten days on the left side, but it was three weeks before the right side was in normal condition.

Case 11 is still under treatment. This was a mass of partly broken-down glands under the right ear. A canula was inserted February 28th, and was pulled out on the dressing, by the patient herself, the following day. It was pulled out with the inner arms open, and the cut was torn to three-eighths of an inch. There was very little subsequent suppuration, and the glands instead of showing abscess formation have been slowly disappearing. There is a sinus about one inch in depth. It may be that in this case a radical operation will be necessary later on, and that the glands will have to be cut out; but before doing this I shall give the patient at least eight weeks more. I think, however, that the adenitis will disappear spontaneously, or that further suppuration will occur, and allow of the insertion of another canula. At present, absorption is evidently going on. The swelling has diminished fully one-half in size, and the patient is in good physical condition. The final result will be reported in any event.

Before concluding, I wish to call special attention to the following details:

(1) The knife should be narrow-bladed (not over an eighth of an inch broad), and very sharp at the point. It should be pushed through the skin, well into the abscess and an even cut made; that is to say, the internal opening should be the same size as the external. The canula should be inserted as soon as the knife is withdrawn.

(2) The abscess cavity should be emptied at once by slow, firm compression. This is said to be bad surgery. I have yet to see a bad result from it. The immediate emptying of the cavity places the walls in the best condition for rapid healing, and subsequent distention is prevented by the free drainage afforded by the canula.

(3) As a rule, I do not syringe. This is indicated in only three conditions: (*a*) Where the cavity needs sterilizing. (*b*) Where solid *débris* is present and will not come out. (Both of which are uncommon in my experience.) (*c*) Where a sluggish healing process calls for a stimulus or an irritant. This comes at a later period of the case.

For sterilizing and for washing out *débris* I use corrosive (1 to 2,000 or 1 to 4,000) or creolin (one or two per cent.). For a stimulus, iodoform and oil; and for an irritant, tincture of iodine.

(4) The dressing should be moist sterilized gauze, and in applying it, the bandage should be carried around the forehead by a number of turns, as well as around the neck. If carried around the neck alone, the dressing moves with every motion of the head, rubs over the canula and causes much irritation of the cut.

(5) In removing the dressing the very greatest care should be taken that it does not stick to the canula; for the skin is tender, and if the canula is adhering to the gauze, it can be easily pulled out with the inner arms open, tearing the skin, and enlarging the resultant scar.

As a rule, the canula should be left in three days, but I have taken it out in twenty-four and in forty-eight hours. It may have to stay in more than three days. It is impossible to lay down an invariable rule on this point. The principle of the treatment depends upon free, continuous drainage, and the canula should be taken out when it is evident that this is no longer necessary. This decision lies wholly with the surgeon. Any one who is familiar with these cases can tell at a glance whether further drainage is needed, or whether healing ought to take place if the cavity is left to itself.

Persistent sinus should be treated as already described.

In conclusion, where the case is a multiple, partially broken-down, glandular inflammation, the patient should understand clearly at the outset that the treatment may extend over a period of many weeks, and that a radical operation may be the final outcome. But from the results which I have obtained in such cases, I think that in any similar case the patient can be assured that there is good reason to expect a favorable result, and that if this does occur the neck will not be disfigured.

In cases where full suppuration is already established, in both glandular and non-glandular abscess, the result is very satisfactory. It is remarkable to see the inflammatory process subside in a few hours under the constant drainage, and to see a, perhaps, very large abscess entirely healed in one week. It is even more satisfactory to see the same case a few weeks later and to try to find the point where the canula was inserted.

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A Medical Appointment for a Woman. — A woman doctor, Madame Touransin, has been appointed Medical Officer to the Lycée Fénélon, in the place of the late Dr. Dujardin-Beaumetz.

## A TEST OF THE ACCURACY OF CLINICAL MEASUREMENTS OF THE LENGTH OF THE LEGS.

BY THOMAS DWIGHT, M.D.,
*Parkman Professor of Anatomy at Harvard University.*

To take accurate measurements on the living with a tape-measure is admittedly difficult. What is worse is the uncertainty as to how great an error is likely to occur even when considerable care is exercised. This doubt is annoying in surgery and in medico-legal medicine. The fact that the legs, which most frequently come into question, are often of different lengths, complicates the matter. It is to be understood that I am speaking of clinical, not of anthropological measurements. As for obvious reasons it is not practicable, even *post mortem*, to institute a series of tests of the accuracy of measurements by disarticulating the legs and remeasuring them, we have to resort to some roundabout method.

In my researches in the dissecting-room of which the results were given in the Shattuck Lecture,[1] I measured before dissection the length of the legs in two ways. First, from the top of the great trochanter to the ground, and, second, from the anterior superior spine of the ilium to the internal malleolus. The former may seem the best guide to the length of the leg but it presents such great difficulties in execution that I consider the other more trustworthy and have relied on it alone in the following tests. It may not be amiss to mention a point of technique in finding the starting-point. If one feels without method for the prominence supposed to be caused by the anterior superior spine of the ilium, it is very easy to mistake for it a part of the crest. The finger should be laid on the crest and carried forward till it has rounded the superior spine. As soon as this is passed, by pressing upward the finger easily recognizes a definite point.

After dissection I measured the greatest possible length of the femur and the length of the tibia, including the malleolus, but not the spine. The test which I now make public is to compare the differences between the combined lengths of both bones with the differences obtained before dissection. Let it be remembered that we are not now discussing the difference between the legs but are trying to determine the accuracy of the measurements made in the flesh. If we find, for instance, that the distance from the spine of the ilium to the inner malleolus is the same on both sides, and then after dissection find that the combined length of the right femur and tibia precisely equals that of the left ones, the presumption is strong that the original measurements were very accurate. The difference between the results I have called the error. Thus, if the first measurements show that the right leg is six millimetres longer than the left, and the bones show that it is only two millimetres longer, the error is four millimetres. If the first measurement shows that the right leg is six millimetres the longer, and the bones show that the left is the longer by two millimetres, I have added the differences together and called the error eight millimetres. I am not at all sure that in this last point the method is the proper one; but I have adopted it because, by making the error appear as large as it possibly can, it is the severest test of the accuracy of the original measurements.

[1] Boston Medical and Surgical Journal, 1894, vol. cxxxi, p. 73.

I have applied this test to 73 bodies with the results shown in the following table:

| Error, in mm. | Times. |
|---|---|
| 0 | 8 |
| 1 | 10 |
| 2 | 12 |
| 3 | 9 |
| 4 | 7 |
| 5 | 11 |
| 6 | 2 |
| 7 | 3 |
| 8 | 6 |
| 9 | 7 |
| 10 | 1 |
| 11 | 2 |
| 13 | 1 |
| 18 | 1 |
| | 73 |

The average error was almost half-way between four and five millimetres; but a better judgment is formed by analyzing the table. Thus it appears that 30 times (that is in 41 per cent. of the cases) the error was either absolutely *nil*, or less than three millimetres, which in such coarse work may be called a negligeable quantity. Only four times did the error exceed one centimetre. In the worst case, in which the error was 18 millimetres, the original measurement made the left leg one millimetre the longer, while the left bones were the longer by 19 millimetres. I cannot help thinking that by a blunder .1 was put in place of 1. in recording the original measurements; but, be that as it may, this method shows a greater accuracy in measurements made with a tape-measure before dissection than I, at least, was prepared for.

# Clinical Department.

## A CASE OF CASTRATION FOR HYPERTROPHIED PROSTATE.[1]

BY M. F. GAVIN, M.D.

This operation is still *sub judice*, and the history of this case, recently operated upon, may be of interest to the profession.

C. G., sixty-nine years old, a widower, entered Boston City Hospital, May 5, 1894, with the following history: Frequent and scalding micturition for five years, occasional pain over pubes, never any retention or dribbling. Examination by rectum showed a large, dense, symmetrically enlarged, smooth prostate, size of a large orange, occluding to considerable degree the rectum, the finger-tip reaching with difficulty the upper edge. The catheter was passed easily until the prostate was reached, which was surmounted with difficulty. The residual urine was five ounces, was acid and contained pus, some bladder cells, a trace of albumin, and very few renal elements. In five days the patient was discharged with directions to return to the hospital for catheterization weekly.

For four months the patient followed this treatment, but the symptoms increased rapidly, and constantly recurring pain made more frequent catheterization necessary, and he was taught the use of the catheter with poor success, the prostatic urethra being too difficult for the patient to pass the catheter through. He finally came to hospital with absolute retention which had existed for twenty-four hours, with great pain, distressing tenesmus, coated tongue, tremulousness, and prostration.

[1] This paper will appear in the Boston City Hospital Reports, Sixth Series.

A No. 9 Coudé catheter was passed with difficulty, and several ounces of cloudy urine withdrawn. Its specific gravity was 1.010, reaction alkaline and no albumin was present. Catheterization had to be performed every four hours, day and night, because of the irritable condition of the bladder, which was quieted by morphia. Pain was still a prominent symptom, and the patient was unable to pass water at all. This condition continued for nearly three weeks, when the urine was still cloudy, acid, 1.012, albumin a trace, and pus was found in the sediment. Castration was performed, and about eight hours after operation the patient had the first voluntary micturition for three weeks. Sixteen hours after the operation catheterization was needed. Voluntary micturition continued during the next day, and a second catheterization was demanded about forty hours after operation. From this time on no catheter was needed, morphia was omitted, and voluntary micturition, unattended by pain, continued. There was no more tenesmus or discomfort. At the end of a week the sutures were removed from the incisions, the wounds healing firmly. The prostate was then diminished markedly in size and consistency. The patient's nervous symptoms were quieter and disposition much more cheerful.

During the second week the patient was up and about the ward in clothes, passing his water during the day about every three or four hours, and three or four times a night. The force of the stream was increased. The character of the urine was unchanged except that there was a little less pus. The urine chart then showed a polyuria, as much as 120 ounces being passed in twenty-four hours, the average being about 98 drachms. Three weeks after the operation the prostate was diminished one-half, and in five weeks was only one-fifth of the size before operation. The patient was then discharged. The urine was then 70 ounces in twenty-four hours, acid, albumin a trace, pus much less in quantity, residual urine three ounces.

The patient reports from time to time at the hospital. He is grateful and enthusiastic, free from pain or discomfort, passes water every four hours during the day and two or three times at night. The residual amount is two to three ounces and is clear, specific gravity 1.010 to 1.014, albumin trace. Patient has gained thirty pounds since leaving the hospital. Prostate is now about one-sixth of the size before the operation.

This case has considerable interest in many ways; it goes to show that permanent benefit does follow the operation of castration for hypertrophy of the prostate. When contrasted with the many other operations that have been suggested, it has much to commend its use. It is rather repulsive to the average man to think of the loss of his testicles, but when we consider that this operation is only called for late in life, when the activity of those organs, to say the least, is on the wane, it must lose much of the repulsiveness that has been urged against this operation. The operation is a simple one and does not entail much risk to life. Of course it is only for a certain class of cases that this operation is called for — persons unable to follow out a systematic course of palliative treatment; where the passage of a catheter is attended with the loss of blood or great pain; where obliged to work and exposed to the changes in the weather, and where the liquor habit prevails.

The subject of this operation had tried the palliative treatment faithfully without any gain; in fact, he was losing flesh and strength. He was told of the different operations — perineal drainage, suprapubic cystotomy, prostatectomy, and castration — but was willing to allow us to use our better judgment. When we think of the suffering that follows hypertrophy of the prostate and how difficult it is to reach even to afford relief, living with a disorganized condition of the bladder and later the kidneys, any remedy ought to be gladly welcomed by the surgeon. I have been greatly impressed with this case and the result that followed the operation.

The suffering of a woman with advanced ovarian cystoma is no greater than that of a man with an enlarged prostate and its consequences, and if ovariotomy is done to relieve the one, why not castration for the latter?

## Reports of Societies.

### SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

CHARLES L. SCUDDER, M.D., SECRETARY.

REGULAR Meeting, Wednesday, March 6, 1895 DR. M. H. RICHARDSON in the chair.

DR. ROSWELL PARK, of Buffalo, read a paper on

#### THE ACUTE INFECTIOUS PROCESSES IN BONE.[1]

DR. J. C. WARREN: I am very much pleased that Dr. Park selected this subject for discussion this evening. I feel that the disease has not been understood by the general practitioner, and not only by the general practitioner, but a large number of surgeons have not and perhaps do not now appreciate the important bearing of this process on bone disease. Many of these cases, in fact the majority of them, are spoken of as necrosis, as if necrosis were a disease and not a sequel of disease, the process itself going unrecognized. The reason the general practitioner does not recognize the disease is because the teaching has been inadequate; and many of these bone affections have consequently been classified, as Dr. Park has already told you, with a number of acute types of disease. Many of them were fatal in their nature as bone typhoid, acute rheumatism, etc. They often run a rapidly fatal course, and I have no doubt many cases reported as blood-poisoning, typhoid fever, etc., were cases of acute osteomyelitis not recognized. On the other hand, the surgeon has not recognized the disease because he has not seen it in its early stages. I think it is remarkable to find how in a long hospital experience one comes to a realizing sense of the fact that one sees so few examples of acute osteomyelitis in its early stages, and the reason is because the doctors do not send the cases into the hospital for treatment. It is just as it was a few years ago in appendicitis. The hospital did not get these cases. It may be that we have an epidemic of appendicitis here, a larger number of cases than elsewhere; but this winter in the Massachusetts Hospital during my term of service there were something like forty cases of appendicitis in the hospital at one time. The general practitioner has begun to recognize the disease, and to send it promptly to the surgeon for treatment; and so I hope it will be eventually with acute osteomyelitis. If we can by

[1] See page 425 of the Journal.

such papers as Dr. Park has presented to-night enable the general practitioner to diagnosticate the disease, then we shall begin to see the disease in its early stage, and perhaps be able to rob future pathological museums of large collections of dead bone, etc., which adorn so many at the present time. I say it is rare for the surgeon to see these cases. I can only recall a comparatively few typical cases of acute osteomyelitis. I remember one which I saw in private practice, which I did picture for acute rheumatism, and for which I gave salicylate of soda. I might as well confess that I made just such a mistake as I deprecate in the general practitioner. A young man after going on a few days with symptoms of acute rheumatism broke out with suppuration in other joints, and died of septicemia in a very few days. An autopsy was refused; but I have no doubt in my mind that that was a case of multiple osteomyelitis terminating in septicemia or pyemia. I have seen two cases of acute osteomyelitis which were recurrent; one was in the space perhaps of about ten years, and the patient came in with the symptoms at the most typical part of the body, namely, the epiphyseal line of the femur, the patient groaning with pain all night. A large incision was made down to the periosteum which did not appear to be very much affected. An opening one and a half inches long by one inch in width was made; the bone chiselled out very freely. I was interested in the condition which I found in the interior of the bone at that time. There was no pus, but there was a dark, bloody, brownish-colored mass of softened cancellated bone, evidently tissue in a state of putrefaction from an acute septic process. This was curetted out and disinfected, as I thought at the time, thoroughly. The symptoms were relieved for the time being, but the disease reappeared. The temperature rose slowly; and finally a second operation was performed. I found then that the septic process was creeping slowly up the bone very much as in the carbuncular types of inflammation in the soft parts, foci of pus showing here and there.

That case eventually led to the so-called spontaneous fracture of the bone which Dr. Park has mentioned, and also had subsequently what I thought to be a secondary tuberculous infection of the tract. The patient through all this refused amputation, and finally came out victorious and has since been married. In another case I saw a return of the disease at the age of fifty, where there had been a history of acute osteomyelitis at the usual period, about twenty years of age. This case was diagnosticated as a case of neuritis by two very able physicians in its earlier stages; but as the swelling and inflammation in the thigh proceeded, it became evident that there was fluctuation, that an abscess was forming, and I was sent for. After inquiring into the case and finding a scar on the thigh low down in the customary place just above the knee-joint, I made the diagnosis of osteomyelitis. There was one especially interesting point in connection with that case. I made several free incisions, the patient refusing to take ether. The pus that was discharged was very foul indeed, of a grumous, brownish color. The shaft of the bone was as smooth and polished as marble and stood out in bold relief in the centre of this abscess. The patient was in poor condition, and as soon as the opening was made his condition became worse; and as I had predicted, he died in three or four days of acute septicemia.

The reference made by Dr. Park to the secondary tubercular infection of old pus-cavities is a very important one, and of especial value in point of view of treatment. These cavities, although the sequestrum has been discharged, do not in many cases tend to heal. With removal of the dead bone the cure has not been effected by any means. The bone is enlarged. A section through the bone shows a tortuous sinus with an ivory induration of the bone around it, and we have a bone fistula which remains perhaps for a life-time; although it may not cause any active suppuration it is a weak point, a nidus for infection. Tubercular infection, I think, is common; and many of the so-called cases of scrofulous bone disease are really complications of this original acute infective process. A large number of cases come to out-patient wards, particularly young children who are in that state of debility which makes them so fit subjects for this form of bacterial infection; many of these cases are looked upon as cases of acute suppurative synovitis or tubercular disease, white swelling of the joint, perhaps of more or less acute nature. Koplick and Van Arsdale have called attention to this type of disease, in many cases of which the abscess instead of involving the shaft of the bone, either breaks through the epiphyseal lines, or develops in the epiphysis primarily, on the epiphyseal side of the epiphyseal line, and in that way involves the joint. Of course, the joint may be involved in a typical case finally; but it is much less common, as you all know. So that in these cases we want to recognize an acute infectious process and the importance of perhaps not merely making an opening in the joint to let out the purulent serum, but to follow the point of suppuration up to its fountain source in the bone. Cases of multiple osteomyelitis have been recognized as a type of osteomyelitis by most writers and care has been taken to differentiate them from the metastatic abscesses which occur in pyemia. A broader view of these cases perhaps would be to classify them with pyemia, because a more minute examination shows that we have not only abscesses in different bones in the body, but we have the ulcerative endocarditis type of inflammation, which shows that other systems beside the osseous system have been involved in the disease; but there are certain typal cases which I think are as well expressed clinically by the name multiple osteomyelitis, or better explained in that way than by the name "pyemia," where we do not have the general infection of the system in a hap-hazard sort of way, and which ran a much less malignant course.

In regard to treatment I can only say when we have got a case of acute osteomyelitis of the virulent type it is just as grave a disease as appendicitis and ought to be treated as promptly; but we have not got quite to the point of looking upon it in that intense way which our young doctors and surgeons do appendicitis. I think the time is coming when it will be recognized, and when surgeons will consider it much as they now do cases of abdominal surgery. I hoped Dr. Park might say something about the treatment of necrosis, which is, of course, the part which we usually have to content ourselves with, and some of the methods of healing of large bone cavities which are formed as a result of the disease, and possibly give us some information as to his experience with decalcified bone, and what conclusions he has come to as to the best way of dealing with these sometimes large abscesses with tortuous sinuses boring in various directions, and, in fact,

forming a suppuration which is perhaps as difficult to disinfect as the Augean stables themselves.

Dr. E. H. Bradford: Dr. Park's paper deserves not only our welcome but our best thought; more so perhaps than the gentlemen here realize or Dr. Park himself. His work is that of a leader in the study of the pathology of bone, an investigation much needed. It will be admitted that at the end of the nineteenth century, although we have accumulated a great deal of knowledge as to the classification of diseases of the liver, kidneys and the larger organs, we know but little of diseases of the bones. The fact is, clinical observers have collected a greater amount of experience than the pathologists have been able to digest, and the busy practitioner has had too little time to devote to purely scientific research in this difficult branch of pathology. Investigations such as Dr. Park has brought to our attention are of the greatest value, not only for the interesting facts collected, but as a stimulus to further research. As he says, there are a great many questions that need to be answered. The whole matter of bacteriology demands study, especially as to the causative relation of germs to diseases of the bone. Is it true that osteomyelitis may appear shortly after typhoid fever, due to the bacillus of typhoid fever; and is it true that the same can happen after pneumonia? I can add one case to those referred to by Dr. Park, where acute osteomyelitis in the ankle followed pneumonia in a healthy boy, an interval of two years being dotted by a number of acute attacks of pain and swelling, culminating finally in complete destruction of the cuboid. There are other clinical facts which Dr. Park hardly had time to pay attention to, which present themselves for study. Why is it that acute osteomyelitis affects boys rather than girls? Why is it that it attacks between the years of ten and twenty more than later? and why does it attack by preference the lower end of the femur? These questions are all of importance, and we certainly owe Dr. Park all the thanks for bringing them so clearly before us.

Dr. Bradford showed a number of specimens of bones representing caries and osteomyelitis; also a specimen of sarcoma of the spine presented to the museum by Dr. Everett Flood, of Baldwinsville. The particular interest in this specimen is that, although the sarcoma had disorganized the cord and portions of the vertebral bodies, the intervertebral substances were swollen to an unusual extent, but apparently not involved by the sarcomatous process.

Dr. H. C. Ernst: I can add very little to the summary Dr. Park has given us of the etiology of this process, but it does not appear to me that it is quite so definitely settled as some suppose in a number of the points presented. One of them in particular is illustrated by what are spoken of as post-typhoidal abscesses in which the typhoid bacillus is found. It is quite possible, of course, that it may occur there; but this is only an illustration of the sort of process Dr. Bradford has just mentioned, the occurrence of acute osteomyelitis following an attack of pneumonia. The conclusion that because a bacterium occurs in a given situation it is therefore the cause of the process with which it is associated, seems to me to be entirely fallacious, and has in the past led to many erroneous conclusions, and will, I dare say, in the future if a serious protest is not entered to stop it. In the first place, we know in the laboratory nothing in regard to the bacillus of typhoid fever that induces us to believe that under any conditions it can be made to produce suppuration. Therefore, why should we believe that because it occurs in an abscess it has taken on an entirely new function? We forget that the methods of bacteriology are of the most imperfect kind, and we know that practically the whole of the modern science was started by the introduction by Koch of the solid nutrient media; and we may look forward to some advance of the same sort in the future in regard to the etiology of these various processes. In such an instance as this of the typhoid abscess we have neglected largely one of the broadest fields of investigation; and so far as I am aware in these processes no attempt has ever been made to study the occurrence of the anaerobic bacteria; whether in these processes there do not occur other varieties of bacteria which will develop under anaerobic conditions and whether they have something to do with the etiology rather than forcing ourselves to the conclusion that the typhoid bacillus has taken on a new function. A second point is that possibly the physicians will not in the future be obliged to send their cases to the surgeons constantly in these processes, because, as it would appear, very considerable advance has been made in the study of the toxines of the staphylococci and the streptococci that certainly are the most common etiological factors in the production of acute osteomyelitis, and the laboratory experiments give promise of the possibility of protection against or the arrest of attacks of this sort by therapeutic agents derived from the cultures rather than by surgical interference.

I have listened to the paper with the greatest possible pleasure, and I can only join in what Dr. Bradford has said in thanking Dr. Park.

Dr. R. H. Fitz: I may be allowed to say a word or two from the medical standpoint. It is obvious that physicians should bear in mind, after hearing such a paper, that, although the bones of the body are supposed to be especially the province of the surgeon, they may originate symptoms which apparently are remote and of more general character than concern the bones in particular. For many years the bone marrow has been looked upon as an important part of the blood-making apparatus closely allied, both in structure and function, to the lymphatic system. Its systematic examination shows that it, like the latter, quickly reacts to infectious agents, presenting a variety of consequent changes, not only those to which Dr. Park has referred, but degenerative changes also, attributable to milder degrees of infection. The physician should, therefore, appreciate that he may find anatomical changes localized in the bone marrow, although the symptoms may be conspicuously those of a pyemia or septicemia, with but ill-defined localizing symptoms — a very important consideration with reference to treatment.

Dr. Park referred particularly, in speaking of etiology, to the importance of the association of traumatism, or of local disturbances of nutrition with a general and perhaps a concealed source of infection. I remember many years ago that Dr. R. M. Hodges emphasized the frequency of osteomyelitis not only among young boys, but especially among very active young boys; in his experience cases being frequent in the summer among boys diving from wharves. Of course, this may represent merely a coincidence, but it is significant that the disease is not especially limited to those who are run down or subject to suppurative processes.

With reference to the relation to rheumatism. I have no doubt that Dr. Park will agree with me in considering that the terms acute rheumatism and osteomyelitis are to a certain extent indefinite, especially as regards the relation of results to causes, and that with the advance of our knowledge we may find that each term has been applied to the action of the same agent or agents, the one representing a milder, the other a severer result of infection. The search is constant for a more exact etiological classification, both for diagnosis and treatment; and, therefore, in behalf of the general practitioner I would say that at the time he may be thoroughly justified in calling his case acute rheumatism, appreciating that it is a mild degree of infection and need not feel called upon to seek the aid of the surgeon until the severity of the symptoms indicate that the integrity of the bone marrow is seriously threatened.

Dr. A. L. Mason: I should like to express the great pleasure with which I have listened to Dr. Park's paper, affording, as it does, so clear an explanation of the painful symptoms with which we sometimes meet toward the end of acute fevers, especially typhoid I should say, and in pseudo-rheumatism. The cases, however, which fall into the hands of physicians I think are not so many, because these bone symptoms do not arise until late in convalescence or even perhaps many months after the patient has had the acute infection which gives origin to the bone inflammation. I presume this also is the reason for the fact Dr. Park has alluded to, that in the text-books and works on fevers little mention is made of this subsequent condition. I am quite sure that in 1878, when periosteal inflammation following typhoid first came to my notice, very little was known about it as a sequence of fever. The case in point was one of prolonged typhoid with sub-periosteal suppuration. The patient was operated on by Dr. Hodges, by incision through the periosteum, and recovered without loss of bone. At that time the matter was entirely new to me and since then, until recently, there has been very little information relating to it in medical text-books. The point which Dr. Park has referred to with regard to the non-suppurative nature of rheumatism I think is an important one. Rheumatoid cases which have been admitted to the hospital and which have shown suppuration have seemed to me improperly classified as rheumatism, since suppuration probably never occurs in true rheumatism.

Dr. H. L. Burrell: The paper which Dr. Park has presented has interested me very much indeed, and many of the clinical pictures which he has presented I recognize. I should beg to protest against the position taken by Dr. Fitz as classifying acute rheumatism with acute osteomyelitis. Acute osteomyelitis, as I have seen it, is an imperative disease; if there is a word which expresses the pathological condition it is a jugulation of the bone, and unless the periosteum is slit up and tension relieved the bone is killed. It is a condition in which it is wrong to wait, and I am very glad that Dr. Park takes the ground that immediate operation is necessary. There is one question that I would like to ask Dr. Park. As I have met these cases — extremely ill, delirious, with very high temperatures — and have been called upon to operate, in making the extensive incisions that are necessary to expose the bone there comes a time when it becomes a question how much the patient will stand. In one instance where I was practically forced into an ablation of the whole shaft of the tibia, finding the periosteum stripped from the shaft of the bone and the bone lying bathed in pus, I lost the patient from shock. That has suggested to me that in these severe cases if we satisfied ourselves with simply draining at first and then did a secondary operation later when the patient was stronger, that perhaps we might save ourselves the disaster of an occasionally immediate death following the operation.

Dr. Park: I have been very much gratified at the discussion that has been evoked or provoked by the paper. I assure you that I read a paper here with no little diffidence, and I am glad to have found something which has been of interest to you. After all, as I think of what I have read, I want to assure you that the subject has been by no means fully covered. There is a great deal more that could be said which I could not say at such a time, and I regard this little essay as only an introduction to the subject of acute infections in bone. It carries one insensibly to similar troubles in and about joints which has been covered by Dr. Townsend of New York.

There are two or three matters upon which I would like to say a word. Why do boys have this trouble oftener than girls? And why particularly between the tenth and twentieth years of life? I have tried to impress that the predisposing causes, so far as externals are concerned, are fatigue and exposure; and these are two causes to which boys are more liable than girls, and boys between ten and twenty more liable than boys below ten years of age. Still I would like to cite an illustrative case occurring, this time, in a girl, but showing the influence of fatigue and exposure: A girl about fifteen years of age who lived at Niagara Falls went skating one day in winter, had no idea how far she went or how tired she was, but got so tired that she sat down upon the ice and cooled herself off in that way; after repeated exposure she got home lame and tired. The next day she was taken with all the signs and symptoms of acute osteomyelitis of the upper end of one femur. The case was treated at her home, part of the time under homeopathic, part of the time under regular auspices, always as acute rheumatism. After three and a half weeks she was so evidently in need of something more than had been done that the suggestion was to take her to the hospital in Buffalo. When she left her home the mother assured me the limbs were of the same length. When she reached Buffalo one limb was two inches shorter than the other. On resection of the hip, the joint end of the bone was found lying loose in a cavity which contained pus. There had been suppuration in that epiphysis. It shows how complete and how speedy this epiphyseal separation may be.

As illustrating also the effect of fatigue in predisposing to infections, there is the somewhat classic experiment which your bacteriologists could tell you about better than I can. Take the experiment with the ordinary domestic rat, which ordinarily is immune to anthrax. Put that animal in a cage with a turning-wheel and keep him working until he is tired out, and you can easily infect him with the germ. It shows the influence of fatigue and exhaustion in predisposing to bacterial infection. I think there is a lesson to be drawn from that in the liability to acute osteomyelitis (and to other infectious diseases) after exposure. The

germs may be in the system or near by where they can infect it, but are not likely to do so unless some one of these conditions obtain.

There is one condition on which I would like to speak which is still *sub judice;* we need more exact information about it. That is the very rare periostitis albuminosa, described by the French school of surgeons, regarded usually as merely a separation of the periosteum of the bone by albuminous or gelatinous material, for which in time past there has been no explanation; of which I have seen one or two cases and which some of the later pathologists suppose to be an expression of this same condition, save that the organisms have either been killed off or perished before the disease is attacked by the surgeon. There is opportunity for considerable research and study in settling a moot point concerning its etiology.

In regard to the treatment of necrosis, etc., the operation itself, of course, requires no consideration here, but I would like to say this about the treatment of the cavities. Nature makes an effort to extrude the sequestrum by provoking a formation of granulation tissue around it and at the ends, furnishes by ulceration an escape for a certain amount of discharge, granulation tissue replacing the bone and finally breaking down, usually by secondary infection, and thus forming the fistulous passages which permit often spontaneous escape of bone. Now the cavity in which the sequestrum lies is lined with this granulation tissue. It is provoked by the presence of this foreign body, this sequestrum. If the surgeon contents himself with cutting away enough bone to remove this, he takes away from that cavity, although he gives greater possibility for escape of discharge, the real exciting cause for further granulation by which it might be healed up. I think the thing for the surgeon to do is to introduce a desirable substitute for this sequestrum. I think the reason why so many of the cavities which we pack with gauze heal better is because the gauze packing serves as a stimulus and substitute for the sequestrum.

I think that many of these cases of necrosis are liable to the possibility of secondary tubercular infection. I am glad so good an authority as Dr. Warren agrees with me in that. It is a feature of the question which I think is not usually nor sufficiently noted in the books and general articles. At present I have a great deal of faith in guaiacol as an antidote to the tubercular process, and I am using packings composed for the most part of iodoform gauze or some such material, which is soaked in balsam of Peru to which is added about ten per cent. of guaiacol, perhaps with iodoform in addition to that.

Lastly, if you will permit me to so far digress as to pay a compliment: the subject with which I have dealt to-night is one I have long been forced to deal with as a teacher; and while I knew students needed that kind of knowledge, they could not get it in any standard text-book at that time. Not until recently has any adequate description of this condition crept into any English books. I am glad to say that in the new work which has just been issued by Dr. Warren, of this city, it finds adequate mention and description, and I think this is but one of the many valuable features which that book contains. I consider his monograph on "Surgical Pathology" a monument to himself and a very great credit to the profession in the community from which it emanated.

THE BOSTON

# Medical and Surgical Journal.

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## THE THIRTEENTH CONGRESS OF INTERNAL MEDICINE.

Among the interesting papers read at the Thirteenth Congress of Internal Medicine just held at Munich, April 2–5, 1895, was one by Heubner, of Berlin, on the "Results of Sero-Therapy in Diphtheria." It was discussed by Widerhofer, Kohts, von Ranke, von Mering, and others.

Heubner (referee) indulges in the usual exhibit of statistics to prove the advantage of the antitoxin injections over all other methods of treatment. Thus, to quote his words: "Sero-therapy has caused in the city of Berlin a notable lessening of mortality. In 1894, before sero-therapy, there were 517 deaths in 1,332 cases of diphtheria (39 per cent.); since the employment of sero-therapy, out of 1,390 cases we have had a mortality of only 21 per cent. The mortality has then diminished about one-half since we have adopted the antitoxin treatment."

The presence of the Löffler bacillus is to this writer the criterion of true diphtheria, and all false membranous affections resembling diphtheria but devoid of this bacillus are simply *diphtheroid.*

The success of the antitoxin treatment depends on its early commencement rather than on the apparent benignity of the affection. The febrile symptoms are less marked under sero-therapy, and the pulse is less frequent. Early treatment diminishes the chances of albuminuria, causes the local symptoms sooner to decline, the false membranes to become detached and fall off sooner than under the old treatment, and when they fall off they are seldom reproduced. Cases subjected to sero-therapy in good season are remarkably exempt from laryngo-tracheal complications. Out of 16 cases where the larynx was invaded from the first, the disease was arrested and recovery followed in nine.

Out of 181 cases of pure diphtheria recorded by this authority, all that were treated by the serum injections on the first and second days got well; and of

those treated on the third day, two only succumbed. In only three of these 181 cases was there any relapse; nine presented symptoms of cardiac weakness, and 12 had partial paralysis. In a few of these cases, an erythematous eruption followed the injections. There was in no case any swelling or suppuration at the point of injection.

Preventive injections were practised on 64 children; two of these were afterwards attacked with diphtheria and one succumbed.

"If," says Heubner, "we compare the observations before and since the introduction of antitoxin, we have to note in favor of the new treatment two important modifications: diminution of the fever, and early expulsion of the false membranes; these facts support the views of those authorities who accord a truly specific value to this treatment. The other characters noted in the course of cases of diphtheria the last year might rigorously be attributed to the 'epidemic genius,' since they have been very generally observed; in reality, it must be strange, to say the least, if the relative benignity of these late epidemics has everywhere coincided exactly with the institution of sero-therapy with no relation between these facts but one of mere coincidence."

Baginski, of Berlin, stated that from the 15th of March, 1894, to the same date, 1895, 525 cases of diphtheria had been treated with antitoxin at the Friedreich Hospital; at first Aronson's serum was employed, then that of Behring. The epidemic which prevailed then was one of the gravest; for during the months of August and September, when the supply of serum had run out, the mortality was 52 per cent., while during the four previous years it had been successively 50 per cent., 33 per cent., 36 per cent., and 42 per cent., the average being 41 per cent. Of these 525 cases, corresponding to the period during which sero-therapy was employed, the mortality only attained the figure of 15.81 per cent.

From a clinical point of view he holds that it is incontestable that sero-therapy exercises a marvellous action on the general state of the diphtheritic, if not from the first day of the injection, at least from the second or third day, provided that the quantity injected is sufficient. These are summed up in a comparatively mild run of the disease, and a prompt return of the appetite and strength. There is, notably, a speedy return of the temperature to the normal. The local processes are more speedily arrested under sero-therapy than under any other treatment.

Baginski agrees with Heubner as to the advantages of early treatment by antitoxin. The mortality of those treated from the first day of the disease by antitoxin was 2.5 per cent.; of those treated from the second day, 10 per cent.; of those treated from the third day, 14 per cent.; of those treated from the fourth day, 23 per cent.; of those treated from the fifth day, 35 per cent.

Among the secondary effects imputable to sero-therapy, were noted the abscesses observed in seven cases where the injection was made deeply into the muscular layers; in the pus of several of these cases no pyogenic bacterium could be found. In 15 cases, erythema multiforme followed the injections, but the speaker did not attribute this complication to the sero-therapy; in fact, long before this treatment came into vogue, diphtheritic erythema was known.

Baginski does not attempt to explain the action of the serum, but believes that the efficacy of the remedy is now sufficiently established empirically.

Widerhofer, of Vienna, in summing up his experience with antitoxin in the hospitals of Vienna, finds a diminution of the mortality of diphtheria by more than one-half since the introduction of sero-therapy. In 130 cases he has used preventive injections with good results, none of these persons contracting diphtheria, though previously exposed. In two other series of cases the preventive injections were practised, and with nearly identical results. No local treatment was used conjointly with the injections; in a few cases of heart weakness, small doses of digitalis, strophanthus or strychnine were given to sustain the circulation. Bronchitis and catarrhal pneumonia, as complications, had been very infrequent since the precaution was taken to give the patients moist, instead of dry, air to breathe by the constant evaporation of water in the wards.

Von Ranke, of Munich, spoke with enthusiasm of the success of the antitoxin treatment in the hospitals of Munich; the mortality had been lessened by more than one-half since the use of sero-therapy. In his estimation antitoxin arrests the spread of the disease and grave cases soon become mild under its use. Sero-therapy is an excellent adjuvant to intubation in laryngeal cases. Kohts, of Strasbourg, also testified to the benefits of sero-therapy in opposing the extension of the pseudo-membranes. He prefers to combine its use with local antiseptic treatment. From the point of view of mortality, he does not, however, find that sero-therapy has furnished results superior to the older methods of treatment. It was admitted, however, that the statistics furnished by Kohts were relatively meagre, and that in almost all his cases, the treatment by antitoxin was instituted late.

Seitz, of Munich, spoke of the greater frequency of erythema since the use of sero-therapy, and thought this complication for the most part due to the injections.

Von Mering, of Halle, said that at Halle out of 74 cases of diphtheria treated by antitoxin from the second day, only four died. The mortality which before had been 28 per cent., was reduced to five per cent. No complication of any gravity had followed the injections. With this statement all the other speakers agreed; only it was affirmed by one or two that the paralytic sequelæ were a little more frequent after sero-therapy.

It was thought by one of the speakers (Vierordt, of Heidelberg), that the favorable results attending the new treatment might be in part due to the benig-

nity of epidemics the past year or so; people were more than ever frightened at the name diphtheria, and the mild cases (such as used to be kept at home), were now sent to the hospitals. Moreover, it should, he thought, be remembered that the local antiseptic treatment has been used more perseveringly and with greater success by physicians of late years.

It will be seen that there was at this discussion, participated in by some of the most careful observers among the German clinicians, almost entire agreement as to the efficacy of the antitoxin treatment in reducing the rate of mortality in diphtheria. There was also a general consensus that thus far no serious complications or sequelæ imputable to the antitoxin serum have attended the injections.

## ANTI-STREPTOCOCCIC SERO-THERAPY.

ANOTHER application of sero-therapy has gone on record. It is the treatment of erysipelas, puerperal septicemia and other diseases due to the streptococcus, by injections of the serum of animals rendered immune to the streptococcus infection.

The curative serum is prepared on the same general principles as the antitoxin of diphtheria. Hares, then a horse, are vaccinated against the streptococcus. The serum of these immunized animals is used first upon animals which have been inoculated with the streptococcus, and with results so favorable as to warrant the application of the same treatment to human diseases caused by that baneful microbe.

At the meeting of the Société de Biologie, February 23, 1895, Roger reported a case of puerperal fever treated by Charrin and himself with streptococcus antitoxin: "Despite the gravity of the infection," he says, "this woman got well in forty-eight hours."

At the session of the society held March 30th, he reported another case of puerperal septicemia treated in the same way and with the same success.

"What struck us particularly in both cases," he adds, "was the prompt amelioration of the general state, the sense of comfort experienced a few hours after the injections, and the speediness of the convalescence."

Roger subsequently treated a case of erysipelas in the same way, and with equally good results. The patient was an infant three weeks old, suffering from erysipelas of the left side of the face. Five cubic centimetres of the antitoxic serum were injected under the skin; this was attended with a fall in the fever and a diminution in the extent of the erysipelas, and at the end of four days the child was well. This case, Roger observes, is the more interesting from the fact that the erysipelas of new-born infants is almost always fatal.

In still another case, the serum was injected in a woman, who twenty days after her confinement was attacked with a pseudo-membranous streptococcus-angina, with high temperature (between 39.7° C. and 41.3° C.). The pulse was rapid, feeble and irregular (148 per minute); the heart-beats had the fetal rhythm. The patient received 60 c. c. the first day in two injections, and 30 c. c. the second day. Thirty-six hours after the first injection, the temperature fell from 41° C. to 38.3° C., and twenty-four hours later it became normal.

These facts present the greatest interest, and suggest the ultimate extension of this treatment to other and still more grave cases of streptococcus-infection. The injections are said to be perfectly innocuous.

## ANNUAL REPORT OF THE BOSTON BOARD OF HEALTH.

THE twenty-third annual report of the Boston Board of Health for the year from February 1, 1894, to February 1, 1895, contains, as usual, some interesting statements. The death-rate, calculated on the basis of a population of 501,000, was 22.98 per 1,000 inhabitants. This is 1.04 less than that of the previous year, and the lowest since 1890. Last year pneumonia caused the largest number of deaths; this year consumption resumes its usual place as the principal factor in the city's mortality. The deaths from consumption numbered 1,425, 12.36 per cent. of the total mortality. The deaths from pneumonia numbered 1,119, or 9.71 per cent. of the total. Diphtheria became epidemic during the year, causing 817 deaths, and its increase was noticeable in every month of the year over those of 1893. It assumed an epidemic form in the last week of September, reached its climax about the first week in December, and gradually fell off at the end of the year. It will be of interest to note in future reports what effect the medical inspection of public schools, as well as the use of antitoxin and the early treatment and isolation of cases discovered by the application of the culture test, have upon the prevalence of this disease. It is fair to expect a decided diminution in its fatality, and ultimately in its frequency.

It is stated that during the past four years diphtheria has shown an increasing tendency in Boston — the rate per 1,000 inhabitants being .505 in 1891, .881 in 1892, .976 in 1893, and 1.630 in 1894. Of the other contagious diseases reported during the year, the deaths from scarlet fever, typhoid fever and measles were respectively less than the year previous. The increase in diphtheria and cholera infantum raised the number of deaths due to zymotic causes to 2,357, an increase of 315 deaths of this class over the previous year, or a percentage of 20.46 to the total mortality. The deaths of children under five years of age were also increased to 4,108, or 35.66 per cent. of the whole number of deaths. This is the highest per cent. since 1887, and the highest number of deaths for any one year on record. The increase of deaths of children was due to diphtheria, cholera infantum, and an unusually large number of enteric diseases, the result of malnutrition.

At the commencement of the year small-pox had

made some headway in the city. In was totally suppressed in May, there having been 77 cases and 22 deaths.

The report concludes from the comparatively low death-rate, and the deaths due to constitutional, local, developmental and violent causes, numbering 9,140, over which little or no control can be exercised by health regulations, that the health of the city is in a fairly satisfactory condition.

The Board, as has been previously stated, hopes soon to have a supply of antitoxin serum from its own laboratory, which will be furnished free to the public institutions and to the poor of the city. It has under consideration a proposition for extending this distribution at cost price to the well-to-do and to the health authorities of the smaller communities forming part of what is known as the Metropolitan District.

The fifty physicians selected by the Board for medical inspection of the public schools began their work November 1, 1894. The reports of these inspectors, for the months of November and December, show that 4,962 pupils were presented to them for examination; and 564 were found to be too ill to remain in school for the time being; 212 were suffering from contagious diseases; 43 were suffering from diphtheria; and 131 were too ill from troubles in the eyes and ears to be in school. Diseases in the throat were most prevalent, and were found in 1,749 pupils. Diseases of the eye, ear, and spine occur sufficiently often among the school children to warrant a more careful examination to detect those who may be suffering from mild forms or early stages of such diseases. School children often suffer serious and unrecognized disadvantages by reason of mild forms and early stages of these ills which would not generally be seen and appreciated by the teachers; nor could this be reasonably expected of them.

The Board of Health purposes to pursue this system of inspection as far as it may be found to be agreeable to the school management and profitable to the highest interests of school hygiene.

There is good reason to congratulate the Board and those connected with it upon the work accomplished by it during the year, for the welfare of the city of Boston.

## MEDICAL NOTES.

A Hahnemannian Hospital for the Insane. — According to the *Medical News*, the Pennsylvania Legislature has before it a petition signed by 20,000 Philadelphians for the establishment of a Hahnemannian Hospital for the Insane.

A New Treatment for Prostatic Hypertrophy. — It is stated that at the recent German Congress of Internal Medicine, Reinert, of Tübingen, reported three cases of prostatic hypertrophy which had been considerably relieved by the ingestion of a preparation of the prostate glands of animals.

A Grewsome Discovery. — According to the New York *Times*, an investigation of the cause of the prevalence of contagious diseases in the schools of New York City has disclosed the fact that out of 112 school trustees 23, or a little less than 20 per cent., are undertakers; a fact which the *Times* says would be amusing were it not so tragical.

The Regulation of Antitoxin in Europe. — The German Government has ordered that antitoxin shall not be offered for sale in the German Empire before being submitted to the Institute of Infectious Diseases at Berlin. After examination the Institute will stamp on the bottle the date and number of the sample. This went into force April 1st. A similar proposal is now before the French Legislature.

Transposition of the Heart, Liver and Spleen. — George S. Dixon, M.D., reports in the *Medical Record*, April 20, 1895, a case of transposition of the heart, liver and spleen, in a boy sixteen years of age, of Russian parentage. The case was shown before the Pediatric Section of the New York Academy of Medicine, February 14, 1895, and the transpositions verified by Dr. A. Jacobi.

Burns due to Intense Cold. — M. Raoul Pictet has described the "cold burns" experienced by himself and his assistants during investigations at low temperatures. In some cases the skin is first red, then blue, and subsequently the area of the injured spot extends to nearly double what it was originally. There is a painful itching sensation in the surrounding tissues, as well as at the affected spot, and healing usually takes five or six weeks. In more serious cases the skin rapidly becomes detached, and there is a long and stubborn suppuration, the wound remaining open for more than six months in one instance after a drop of liquid air had fallen on the hand.

A Sterilized Bill of Fare. — The physicians of the government of Podolia, says *La Médecine Moderne*, recently held a meeting to devise measures to be taken against the cholera. Like every self-respecting medical meeting, this one was concluded by a banquet, of which the following is the *menu*:

Vodka bactéricide et hors-d'œuvre immunisateurs.
Bouillon stérilisé.
Roastbeef aux phagocytes, sauce serum No. 3.
Dinde rôtie, immunisée, contre le choléra des poules,
aux marrons stérilisés à l'étuve.
Glaces préparées au lait stérilisé dans des appareils
centrifuges et servies dans des boites Petri.
Fruits de l'arbre de la science du bien et du mal.
Vins Pasteurisés. — Vin blanc filtré sur bougie Chamberland.
— Bière et porter en cylindres hyalins. —
Champagne ayant subi la quarantaine à Riga.
Café, liqueurs et cognac pour parfaire la désinfection.

Lay Comments on a Lithopedion. — The *Journal of the American Medical Association* is responsible for the following interesting conversation: A surgical operation was recently performed at the Religio-Medici General Hospital at X——, for the removal of a lithopedion from an adult male. The operation was successful as to the delivery by laparotomy of the fetal remains, but the parent did not survive. Two ladies travelling in one of our public conveyances were over-

heard discussing the singular operation. One of them remarked: "So odd, was it not, and in a young man at that." — "Yes," replied the other in a subdued tone of voice, "and a bachelor, too."

## BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, May 1, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 58, scarlet fever 38, measles 166, typhoid fever 13.

The American Pharmacy Fair. — An American Pharmacy Fair, the first of its kind ever attempted in America, will be held in Mechanics Building from May 1st to May 25th.

The Keeley Bill. — The Committee on Public Charitable Institutions have reported adversely to the bill proposing to compel the employment of the Keeley cure at the Massachusetts Hospital for Inebriates.

Child Insurance in Massachusetts. — On April 30th the Massachusetts House of Representatives, by a vote of 149 to 23, refused to order to a third reading the bill to prohibit insurance of the lives of children under ten years of age, thus ending the matter for the present session.

Dr. Forster appointed Surgeon-General. — Lieutenant-Colonel Edward Jacob Forster of Boston, Medical Director First Brigade, M. V. M., has been appointed Surgeon-General by Governor Greenhalge, in place of Brigadier-General Herbert L. Burrell, retired.

The Suffolk District Medical Society. — At the annual meeting of the Suffolk District Medical Society the following gentlemen were elected officers for the ensuing year: President, John G. Blake. Vice-President, Francis H. Brown. Secretary, Herbert L. Smith. Treasurer, Edward L. Buckingham. Librarian, B. J. Jeffries. Member of the Nominating Committee of the Massachusetts Medical Society, W. L. Richardson. Committee of Supervision: F. Minot, S. L. Abbot. Committee on Social Meetings: G. A. Leland, E. Reynolds, P. Thorndike, John Dane. Censors: H. F. Vickery (Councillor), F. B. Harrington, R. W. Lovett, E. O. Otis, George Haven.

## NEW YORK.

Leprosy. — One case of leprosy in New York and two in Brooklyn have recently been reported. While all were in different families all three occurred in colored lads who were born in the West Indies. The New York case has been sent to North Brothers Island, and the patient is stated to be in an advanced stage of the disease.

A Young Mother. — One day last week at the Court of Common Pleas, in a suit for damages against a landlord, there was presented the novel spectacle of a woman of fifty accompanied by a married daughter thirty-seven years of age, and the mother looked about as young as the daughter. She stated that she had been married at the early age of twelve, and that her child was born when she was only thirteen.

A Centenarian. — Mrs. Catharine Scott, who is believed to have been the oldest woman in Brooklyn, died at her home in that city on April 21st. She was a native of Ireland and her age is given as one hundred and three. But for a fall three months ago in which she suffered a fracture of the thigh, she would probably have lived several years more, as she always enjoyed excellent health. Despite her great age it is stated that she had not a gray hair, and that she was able to read without glasses. She had had three daughters and one son, and the last surviving daughter died about three months ago at the age of sixty.

A Contagious Hospital for Paying Patients. — A project has been set on foot for the erection of a hospital for the treatment of patients suffering from diphtheria, scarlet fever, and other contagious diseases, who are able to pay for their accommodations. It is designed especially for those attacked with contagious diseases while stopping in hotels and boarding-houses. The bill for the incorporation of the institution has now passed the Legislature, and the site for the proposed building in East 16th Street, near the Willard Parker Hospital, has been surveyed. The prime mover in this very useful and practical philanthropic work has been Mrs. John B. Minturn, who has contributed $25,000 towards it. In addition $36,000 has been subscribed by others, and there now remains but $14,000 to be raised to complete the $75,000 endowment fund required. It is hoped that the building may be erected during the coming summer, and be ready for occupancy in the autumn.

Tenement-House Reform. — The tenement-house reform bill which recently passed the Legislature has been sent to Mayor Strong for his approval, and on April 25th he gave a public hearing in regard to it. Among those who spoke in favor of it were President Wilson and Dr. Cyrus Edson, of the Board of Health, and Richard Watson Gilder, the President of the Tenement-House Commission, who stated that it was the result of the most careful and painstaking investigation on the part of the Commission and was probably as good a bill as could be framed at the present time. Among the vital points in the bill are the provisions forbidding the covering of more than 75 per cent. of any tenement lot with buildings, instead of 78 per cent., as at present, and permitting the Board of Health to condemn an unsanitary tenement. The principal objections to the bill came from contractors and builders, who claimed that in many of its provisions it was impracticable and theoretical, and that it would largely increase the cost of tenement buildings. The mayor thanked Mr. Gilder for his arduous labors in behalf of tenement-house reform, and stated that he would approve the bill, though he might possibly suggest some minor changes in it.

## Miscellany.

### A COMPLIMENTARY DINNER TO THREE NEW MEDICAL BARONETS.

THE *Medical Press and Circular* gives a rather amusing account of the "complimentary dinner" given to Sir John Erichsen, Sir Russell Reynolds and Sir John Williams, at the Criterion in London on the 27th ult., which it characterizes as "but a qualified success." The account shows that if the art of after-dinner oratory among British medical baronets is not in a high state of cultivation, at least one British medical journal cannot be accused of timidity in criticism. The account runs as follows:

"The proceedings were opened by the Chairman, Lord Reay, who, in a speech of inordinate length, which might have done duty as an introductory lecture at one of the medical schools, was understood to propose the health of the guests of the evening. The resolution was spoken to by Sir Henry Thompson, who, much to the disappointment of his old pupils, was inaudible, and failed to make any impression or to relieve the monotony of the proceedings. Dr. Champneys, who had been selected to champion the cause of Sir John Williams, spoke distinctly and scored the first success of the evening. Sir John Erichsen, in reply, delivered a speech which was full of pathos and stirred to a marked degree the feelings of the audience. Sir Russell Reynolds spoke with his accustomed fluency and precision, and illustrated his remarks with numerous appropriate and amusing anecdotes. Sir John Williams was lachrymose to a degree, and was clearly unable to rise to the occasion. The proceedings terminated with a speech by Sir William Broadbent proposing the health of the Chairman, who took advantage of the opportunity to inflict on the remnants of the company another oration."

### A SUCCESSFUL OPERATION FOR PURULENT PERICARDITIS.

SURGICAL intervention in pericarditis is so rare as to render the case operated by Eiselsberg, and reported in the *Wiener klin. Woch.*, for January, 1895, of especial interest. The case was that of a boy of seventeen who developed a purulent pericarditis after a stab-wound of the pericardium. Puncture of the pericardium having been performed several times without relief, the surgeon decided upon incision. The cartilage of the fourth rib on the left was resected, and the thickened pericardium exposed. After exploratory puncture it was opened by a transverse incision four centimetres in length, and two litres of a sero-purulent fluid were evacuated. The cavity was washed out with warm salicylated water, the borders of the pericardial incision stitched to those of the wound, and two drainage-tubes inserted. Complete recovery took place in four weeks. Examination of the exudate showed the presence of an organism resembling the colon bacillus, but it was of course impossible to say whether its presence was primary or the infection took place through the wound. The writer insists upon the importance of suturing the pericardium to the lips of the wound, the advantages of which procedure in preventing infection of the pleura are evident.

## Correspondence.

### THE GOOD OLD TIMES.

JAMAICA PLAIN, April 29, 1895.

MR. EDITOR: — The following item clipped from a Boston daily paper dated August 15, 1865, and sent me by a friend, may interest your readers as it did me:

THE "GOOD OLD TIMES." — The *Worcester Spy* prints a genuine curiosity, in a doctor's bill, dated no longer ago than 1830. The price of a visit in those days was fifteen cents, but when the conscientious physician took one ride to see several patients he divided the price among them, so that the most frequent item in the bill is "to part visit, 8c." The charges for medicine range from five to twenty cents, and the highest amount in the column is "to sundry medicine, compound tincture, and tin box, 30c." The total of the bill, which is for constant attendance and medicine for a period of eight months, the visits averaging as often as once a week, is less than five dollars.

Though the services of our profession are by no means rewarded at their full value even at the present day, we may yet be thankful that we did not practise in the "good old times."

Very truly yours,

ARTHUR P. PERRY.

[It would be interesting to ascertain, if possible, the amount of the necessaries of life which the fee of 1830 would purchase, such information being essential to a fair comparison. How far the greater purchasing power and the lower scale of living would go to make up for the comparatively small size of the fee is an open question.— ED.]

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 20, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diarrheal Diseases. | Diphtheria and croup. | Measles. |
| New York | 1,956,000 | 913 | 386 | 14.63 | 21.56 | 2.20 | 5.80 | 3.41 |
| Chicago | 1,800,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 505 | 146 | 9.80 | 14.20 | 1.40 | 4.80 | .20 |
| Brooklyn | 1,043,000 | 382 | 137 | 12.84 | 24.18 | .52 | 6.76 | .78 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,167 | 194 | 53 | 8.87 | 23.97 | .51 | 3.57 | .51 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 103 | 26 | 4.85 | 13.58 | 1.94 | .97 | — |
| Cincinnati | 325,000 | 115 | 29 | 7.58 | 19.78 | — | .86 | — |
| Cleveland | 325,000 | 113 | 34 | 8.23 | 17.13 | 2.67 | 1.78 | — |
| Pittsburg | 272,000 | 88 | 36 | 11.40 | 21.66 | — | — | 1.14 |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 29 | 8 | 7.50 | 31.05 | — | 3.45 | — |
| Charleston | 65,165 | 31 | 11 | — | 12.92 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 29 | 15 | 13.80 | 10.35 | 3.45 | 3.45 | — |
| Fall River | 93,233 | 40 | 19 | 12.50 | 42.50 | 7.50 | 5.00 | — |
| Lowell | 90,613 | 22 | 7 | 9.10 | 27.30 | 4.55 | — | — |
| Cambridge | 79,697 | 32 | 9 | 9.39 | 25.00 | — | — | — |
| Lynn | 68,113 | 15 | — | 13.33 | — | — | — | — |
| Springfield | 50,594 | 13 | 5 | 13.94 | 27.88 | — | — | 6.97 |
| Lawrence | 49,900 | 17 | 6 | 17.64 | 23.52 | — | — | — |
| New Bedford | 47,741 | 18 | 4 | — | 16.66 | — | — | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,929 | 9 | 2 | 11.11 | 11.11 | — | — | — |
| Salem | 33,155 | 8 | 0 | 12.50 | — | — | — | — |
| Haverhill | 32,925 | 16 | 4 | 12.50 | 25.00 | — | 6.25 | 6.25 |
| Malden | 30,209 | 13 | 1 | 13.94 | 13.94 | — | — | — |
| Chelsea | 29,806 | 13 | 3 | 20.91 | 6.97 | — | — | — |
| Fitchburg | 28,383 | 6 | 0 | — | 33.33 | — | — | — |
| Newton | 28,837 | 7 | 1 | — | 14.28 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 7 | 1 | — | — | — | — | — |
| Waltham | 23,058 | 6 | 1 | — | 33.33 | — | — | — |
| Quincy | 18,642 | 6 | 1 | 33.33 | — | — | 16.16 | — |
| Pittsfield | 18,802 | — | — | — | — | — | — | — |
| Everett | 16,585 | 11 | 6 | 36.36 | 9.09 | — | — | — |
| Northampton | 16,331 | 4 | 2 | 25.00 | — | — | — | — |
| Newburyport | 14,073 | 6 | 0 | — | — | — | — | — |
| Amesbury | 10,920 | 2 | 0 | — | — | — | — | — |

Deaths reported 2,861; principal infectious diseases (smallpox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 322, acute lung diseases 570, consumption 319, diphtheria and croup 124, measles 40, diarrheal diseases 40, typhoid fever 34, scarlet fever 27, whooping-cough

25, cerebro-spinal meningitis 14, erysipelas 9, malarial fever 6, small-pox 3.

From typhoid fever Philadelphia 10, New York and Brooklyn 4 each. Pittsburg 5, Boston and Cleveland 2 each. Washington, Cincinnati, Lowell, Lynn, Lawrence, Brockton and Quincy 1 each. From scarlet fever New York 10, Brooklyn and Pittsburg 4 each; Chelsea 2, Philadelphia, Boston, Nashville, Cambridge, Lynn, Lawrence, and Salem 1 each. From whooping-cough New York 6, Brooklyn 5, Boston 3, Cincinnati, Providence, Worcester, Springfield, Lawrence, Northampton and Clinton 1 each. From cerebro-spinal meningitis New York and Everett 4 each; Washington, Worcester, Somerville, Chelsea and Waltham 1 each. From erysipelas New York 5, Brooklyn 3, Boston 1. From malarial fever New York 3, Brooklyn 2, Philadelphia 1. From small-pox Cincinnati 2, Philadelphia 1.

In the thirty-three greater towns of England and Wales, estimated population 10,591,530, for the week ending April 6th, the death-rate was 21.1. Deaths reported 4,280, acute lung diseases (London) 427, whooping-cough 93, measles 53, diphtheria 51, diarrheal diseases 38, scarlet fever 21, fever 17, small-pox (Derby) 1.

The death-rates ranged from 10.9 in Croyden to 33.0 in Bernley; Birmingham 26.9, Bolton 23 6, Bradford 19.3, Gateshead 20.7, Hull 25.5, Leeds 21.9, Leicester 23.1, Liverpool 24.9, London 19 0, Manchester 26.4, Newcastle-on-Tyne 16.9, Nottingham 15.4, Portsmouth 20.0, Sheffield 20 7, West Ham 15 7.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending April 13th, the death-rate was 20.5. Deaths reported 4,160: acute diseases of the respiratory organs (London) 368, whooping-cough 108, measles 68, diphtheria 68, diarrhœa 50, scarlet fever 26, small-pox (Birmingham) 1. The death-rates ranged from 2.4 in Cardiff to 28.2 in Preston, Birmingham 25.5, Bradford 18.2, Halifax 17.8, Hull 22.9, Leeds 19.0, Leicester 16.7, Liverpool 24.1, London 19.3, Manchester 24.6, Newcastle-on-Tyne 20.1, Norwich 20.4, Nottingham 19.8, Portsmouth 16.1, Sheffield 19.8, Sunderland 18.9, West Ham 18.2.

## METEOROLOGICAL RECORD.

For the week ending April 20th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | Direction of wind. | | Velocity of wind. | | Weather. * | | Rainfall in inches. † |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S ..14 | 29.69 | 46 | 51 | 42 | 100 | 100 | E. | E. | 8 | 8 | R. | R. | 1.63 |
| M..15 | 29 75 | 44 | 48 | 39 | 85 | 92 | N. | N.E. | 9 | 13 | O. | R. | .07 |
| T . 16 | 30.12 | 39 | 44 | 34 | 91 | 65 | 78 | N. | N. | 22 | 8 | N. | C. | .06 |
| W..17 | 30.12 | 44 | 53 | 35 | 38 | 49 | 44 | N. | S | 9 | 4 | C. | C. | |
| T ..18 | 30.08 | 46 | 52 | 39 | 59 | 66 | 63 | N.W. | N.E. | 2 | 7 | O. | C. | |
| F ..19 | 29.92 | 50 | 61 | 39 | 49 | 51 | 50 | N.W. | S.E. | 5 | 6 | C. | C. | |
| S...20 | 30.12 | 46 | 50 | 42 | 70 | 64 | 67 | E. | E. | 8 | 3 | C. | C. | |
| ☞ | 29.97 | | 51 | 39 | | | 70 | | | | | | | 1.76 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 20, 1895, TO APRIL 26, 1895.

### PROMOTIONS.

LIEUTENANT-COLONEL DALLAS BACHE, deputy surgeon general, to be assistant surgeon general with the rank of colonel, April 18, 1895.

MAJOR DAVID L. HUNTINGTON, surgeon, to be deputy surgeon general with the rank of lieut.-colonel, April 18, 1895.

CAPTAIN WILLIAM C. SHANNON, assistant surgeon, to be surgeon with the rank of major, April 18, 1895.

By direction of the president the retirement from active service April 18, 1895, of COL. JOSEPH R. SMITH, assistant surgeon general, is announced.

Leave of absence for six months, with permission to go beyond sea, to take effect upon his relief from duty at Fort Columbus, New York Harbor, is granted CAPT. WILLIAM P. KENDALL, assistant surgeon.

## BOOKS AND PAMPHLETS RECEIVED

Annali di Medicina Navale, Gennaio, 1895. Anno 1. Fascicolo 1.

Nervous Disease in Early Syphilis. By G. Frank Lydston, M.D. Reprint. 1895.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 27, 1895.

M. W. BARNUM, assistant surgeon, ordered to examination for promotion, May 15th next.

J. E. PAGE, assistant surgeon, ordered to examination for promotion, May 15th next.

F. G. BRATHWAITE, assistant surgeon, ordered to the Naval Hospital, Norfolk, Va.

T. C. WALTON, medical inspector, ordered as delegate to American Medical Association, Baltimore, Md.

S. H. DICKSON, surgeon, ordered as delegate to American Medical Association, Baltimore, Md.

## SOCIETY NOTICES.

THE WARREN CLUB.— A regular meeting of the Club will be held at 80 Marlborough Street, on Tuesday evening, May 7, at 8 o'clock.

Dr. John T. Bowen: "Modern Theories and Treatment of Eczema."

Dr. Paul Thorndike: "Points in the Treatment of Strictures of the Deep Urethra."

W. E. PAUL, M.D., *Secretary*.

AMERICAN ASSOCIATION OF MEDICAL EDITORS.— The Annual Dinner of the American Association of Medical Editors will take place Monday, May 6, 1895, at the Equitable Building (ninth floor), Calvert and Fayette Streets, Baltimore. A Business Meeting will be held at 6.30 P. M., at the same place. Members may bring guests upon purchase of tickets for them. Banquet tickets, $5.00. Those expecting to attend will please write *immediately*, stating number of tickets desired, to

WILLIAM B. CANFIELD, M.D.,
1010 N. Charles Street, Baltimore, Md.

## RECENT DEATHS.

MOSES REUBEN GREELY, M.D., M.M.S.S., died at South Weymouth, April 24, 1895, aged sixty-seven years.

CHARLES PARKER SPALDING, M.D., M.M.S.S., died in Lowell, March 25, 1895, aged forty-six years.

NATHAN FRENCH, M.D., M.M.S.S., died at Malden, April 27, 1895, aged eighty-four years.

KARL THIERSCH, M.D., died in Leipsic, April 28th, aged seventy-three. He had been professor of surgery in Leipsic since 1867. His contributions to surgical progress were many and important, and his method of transplantation of large pieces of skin, "the Thiersch grafts" is one of the most valuable of recent surgical procedures.

KARL LUDWIG, M.D., the eminent physiologist, died at Leipsic, April 26th, aged seventy-nine years. He had been professor of physiology in Leipsic since 1865, and for the preceding ten years had held the chair of physiology in Vienna. He was the inventor of the kymograph, and the importance of his work and that of his pupils to physiology can hardly be over-estimated.

GEORGE CUPPLES, M.D. (Edin. and Paris), died at San Antonio, Texas, on the 19th of April, in his eightieth year. He had practised in San Antonio for upwards of fifty years. He was buried on Sunday, the 21st inst., and the body was followed to the grave in San Fernando Cemetery by probably the largest procession of mourners ever seen in the city of his adoption.

Dr. Cupples was president of the State Medical Association in 1874 and again in 1878. He was a skilful and courageous surgeon. He was the first to introduce into Texas anesthetics — ether first and chloroform afterwards. He was the first in the United States to perform the extirpation of the tongue for cancer, by Nunnelley's method, and to perform the operation of ovariotomy in a child under eight years of age, and to perform Freund's operation for the extirpation of uterus and ovaries. He was the first in Texas to amputate at the hip-joint and knee-joint with success.

Dr. Cupples first became connected with the naval service, having enlisted as staff assistant surgeon in the Spanish service, in 1836. In 1838 he resigned, and in August of the same year he graduated from the University of Edinburgh, studying also in the hospitals of London. He then went to Paris, where he studied until 1843 for the purpose of occupying an official position in the hospitals of France. In 1844 he sailed for America, coming direct to San Antonio from Paris. During the Mexican war he enlisted in Hay's second regiment of cavalry and served throughout that struggle as a surgeon. When the civil war began he entered the Confederate army as first surgeon of the seventh Texas regiment of mounted volunteers, serving in the campaign of New Mexico. In December, 1862, he was appointed medical director of the Eastern Military District of Texas and continued in charge until he was ordered to join Sibley's brigade in Louisiana. The following summer he served as senior chief surgeon of division, and in June, 1864, as medical director and inspector of the cavalry corps of the Trans-Mississippi Department up to the close of the Red River campaign. He gave his parole at San Antonio at the surrender.

## Original Articles.

### OBSERVATIONS ON DIPHTHERIA.[1]

BY J. H. McCOLLOM, M.D.

It is generally supposed that diphtheria is a disease of modern times, but Aretæus, a Greek physician of Cappodocia, wrote a description of a disease similar to diphtheria in 111 A. D. In the sixteenth century the disease was prevalent to a greater or less extent, according to written statements of the physicians of that time. In 1821 Bretoni wrote the first full and elaborate account of the disease. After that time, until 1847, the disease did not seem to attract much attention among the physicians of the Continent. In 1847 an outbreak of diphtheria occurred in England, which was traced to its origin at Bologue, and was known as the "Bologne sore throat." Since that time diphtheria has been more generally recognized and more carefully studied; and for this reason, although diphtheria is somewhat more prevalent at the present time than formerly, yet the apparent increase is due in a measure to the better recognition of the disease.

Diphtheria was first recognized in Boston in 1859, in which year there were 19 deaths from this cause, reported. From what is known of the disease to-day it seems reasonable to suppose that if 19 deaths from a so-called new disease were reported, there must have been many cases of the same disease that were not recognized. The following year there was only one death from this cause reported in Boston. Since that time the death-returns have shown a gradual increase in the number of deaths. In 1863 and 1864 in Boston, with a population of 186,526, there were 106 and 108 deaths respectively. From 1865 to 1875 there were very few deaths from diphtheria. In 1875 the number of deaths from this disease increased to an alarming extent, from 72 to 420. In 1881, there was quite a severe epidemic of the disease in this city; the deaths for that period numbering 601, giving a rate per 1,000 of the living of 1.657. Since 1881 the number of deaths from diphtheria has varied from 232 to 817 each year. The number of cases reported in 1894 was 2,019, with 817 deaths. The death-rate from this disease per 1,000 of the living for 1894 was 1.630, while that of 1893 was .976. The most marked increase in the cases of diphtheria in 1894, as compared with that of 1893, occurred in the last six months of the year.

In England the increase of the mortality from diphtheria has been much more marked in the larger towns than in the rural districts. In London this has been more particularly noticeable. For instance, during 1871 the death-rate was .10 per 1,000 of the living; while in 1890 it was .33 per 1,000.

Dr. G. B. Longstaff, in a paper on the "Geographical Distribution of Diphtheria in England and Wales," shows that in the past few years there has been an increase in urban districts as compared with the rural. For the purpose of this investigation the twenty-six years from 1855 to 1880 were divided into three periods, and the districts into dense, medium and sparse. In the first period, 1855–60, in which the death-rate from diphtheria per 1,000,000 for the whole country was 182, it was found that the rate was 123 in the dense districts; 182 in the medium districts; and 248 in the sparse districts. In the period from 1861 to 1870 the death-rate from diphtheria per 1,000,000 was 163 in the dense districts; in the medium, 164; in the sparse, 223. In the period from 1871 to 1880 the rate in the dense districts was 114; medium 125; and the sparse districts, 132. It will be seen from this that in the period from 1855 to 1860 the death-rate from diphtheria per 1,000,000 was twice as great in the sparse districts as in the dense; that from 1871 to 1880 there was a difference of only 18 between the death-rate of the sparse districts as compared with the dense districts.

It is now generally conceded that imperfect drainage and unsanitary conditions should not be considered important factors in increasing the frequency of this disease. Twenty years ago diphtheria was considered to be a filth disease; but careful investigation of the course of epidemics in various parts of the world and the discovery of the specific organism of this disease have proved the fallacy of this opinion. In an epidemic of the disease occurring a few years ago, in a neighboring city, investigated by the State Board of Health, it was found that in localities where the hygienic conditions were good, where the drainage was perfect, the disease was much more prevalent than in localities where there was not sufficient drainage and the most marked unsanitary conditions existed. An analysis of the cases of diphtheria reported in Boston for five years from 1888 to 1892 shows that in the crowded and poorer localities of the city the disease was not so prevalent as in the better portions of the city. For instance, in Ward 16, with an average population of 213 to the acre, the morbidity was much less than in Ward 25 with an average population of seven to the acre. Elevation above tide-level in this city does not seem to have any bearing upon the prevalence of the disease. As an illustration of this point, a comparison of that portion of East Boston the elevation of which is only a few feet above mean low water, with that in which the elevation is much greater, shows that the disease was much more prevalent, for five years, in the latter than it was in the former.

The discovery by Klebs of the bacillus of diphtheria in 1883 and the investigations by Löffler a year later placed the etiology of diphtheria upon a scientific basis. The result of these researches shows conclusively that diphtheria is distinctly an infectious disease; that it never originates spontaneously; and that it is a local disease; that the constitutional symptoms are due not to the presence of the organism in the blood, but that they are due to the toxine caused by the growth of the bacillus. The term diphtheria should only be applied to those cases in which the bacillus exists. All other cases of disease of the mucous membrane of the mouth and throat characterized by the presence of a false membrane should not be considered as diphtheritic in their nature. The diagnosis of diphtheria, particularly in the milder cases, is impossible without a bacteriological examination. In the milder cases the appearance of the membrane has nothing distinctive on which to base a diagnosis. The term "pseudo-diphtheria" has been used to designate cases of sore throat where there is a membrane, but in which the bacillus of diphtheria is not found. In these cases the streptococcus pyogenes and the staphylococcus pyogenes aureus and the albus have been found.

[1] Read before the Clinical Section of the Suffolk District Medical Society, February 20, 1895.

Much has been said regarding the liability to error in technique, in making cultures, in cases of membranous sore throat. While it is perfectly true that in certain instances where there is an extensive membrane in the throat, diphtheritic in its nature, through some error in technique the bacillus is not found, yet the chance of failure is not so great as to invalidate to any appreciable extent the accuracy of a bacteriological diagnosis. In a mild case of diphtheria, with very little membrane the liability to error is very slight.

In regard to the manner of taking cultures, there is this very important practical point. Experience has shown that the bacilli on the exposed surface of the false membrane frequently die, so that if the wire is passed simply over the surface of the membrane the result, so far as the bacillus of diphtheria is concerned, will be negative; but it may be positive so far as other organisms are concerned, as streptococci and staphylococci. It is, therefore, necessary to pass the wire either through the membrane or along its edges, and then inoculate one tube. It is also well to inoculate a second tube with the secretions from the throat near the site of the membrane. If this is done, in every instance, the liability to error will be very much diminished.

A second very important point is, that the patient should not use any disinfecting gargle for at least an hour before the culture is taken. The result of the investigations of Dr. Park in New York showed that while antiseptic gargles did not restrain the growth of other bacteria they did prevent the growth of the bacillus of diphtheria.

Much has been said regarding the existence of a bacillus morphologically similar to the bacillus of diphtheria, found in the throats of healthy individuals, and it has been claimed that this organism is a productive source of error in bacteriological diagnosis. Investigations, however, have shown that this organism does not interfere to any considerable degree with the accuracy of the diagnosis.

The examination of 70 non-diphtheritic throats made at the bacteriological laboratory of Harvard Medical School showed that the existence of this bacillus was not sufficiently frequent to be an element of error in bacteriological diagnosis. In the cultures from these 70 throats bacilli of many varieties were found; but in no instance was an organism seen that with care would be likely to be mistaken for the bacillus of diphtheria. In cultures made from the throats of 60 patients in the Children's Hospital, some of whom had been exposed to diphtheria, but in whom there was no clinical evidence of disease the bacillus of diphtheria was found in only one instance. It would seem from the result of these 130 cultures that the pseudo-diphtheritic bacillus cannot be a source of very great error. The bacillus of diphtheria may become after a time non-virulent and in this condition may remain in the mouths of patients who have had diphtheria for a long time; but it is reasonable to suppose that it may at any time acquire virulence, and therefore should be regarded as an element of danger.

The bacillus of diphtheria is a straight or slightly curved rod with rounded ends. Irregular forms are very frequently seen. As it is a pathogenic organism it grows more rapidly at the temperature of the blood than at a lower temperature; and for this reason it is important for the purposes of diagnosis to place the inoculated tube in an incubator over night. This organism grows readily on all the usual culture media. It has been claimed that this bacillus will not grow on potato prepared in the usual way, but careful and extended experiments have shown conclusively that although the growth is very slight and that irregular forms are quite common, yet at the end of forty-eight hours a thin film, which can be seen by careful inspection, forms on the surface of the potato. The growth of the needle culture in gelatin is not sufficiently characteristic to be of any very great importance from a diagnostic point of view. Milk is an exceedingly good culture-medium for this organism, and therefore may be a source of infection. The best culture-medium for diagnostic purposes is Löffler's mixture, composed of blood serum three parts, with one part of bouillon containing one per cent. of peptone, one per cent. of grape-sugar and one-half of one per cent. of sodium chloride. Upon this culture-medium, at the end of twenty-four hours, moderate-sized white colonies will appear, while other bacteria will not have developed colonies to any considerable extent.

Welch and Abbot found that this organism died after an exposure of ten minutes to a temperature of 58° C. (138° F.) This has an important bearing on the subject of disinfection by heat.

In regard to streptococci throats, it is a question just how infectious they are. That they are infectious to a slight degree is reasonable to suppose; but thus far experience has shown that their degree of infectiousness is much less than that of diphtheria.

One very important factor in the spread of diphtheria is the existence in cats and dogs of diphtheria. The disease manifests itself in cats and dogs not by the existence of marked membrane in the throat but by the condition of the lungs simulating pneumonia. The animal has a peculiar strident cough; has anorexia and loses flesh rapidly. At the bacteriological laboratory, recently, cultures taken from the throats of a cat and a dog that had been exposed to diphtheria revealed the presence of the bacillus of diphtheria. This organism disappeared from the throat of the cat in about two weeks; as the dog was killed, no further investigation could be made.

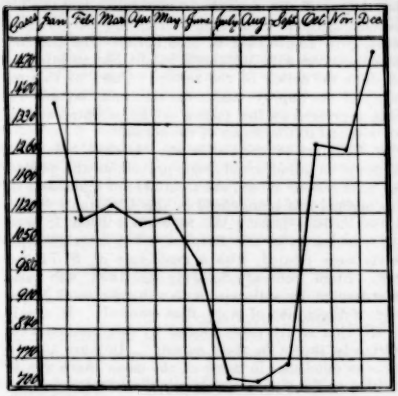
The bacillus of diphtheria in the case of the lower animals is a trifle longer than that found in human beings; but it has the same cultural peculiarities and is as virulent as that in human beings.

Cows may have diphtheria, and when suffering from the disease may be a source of infection.

Klein, in a report to the Local Government Board of London, traced an epidemic of the disease to milk from cows that gave unmistakable evidence of being ill of diphtheria. Small areas of false membrane were found on the teats of these cows. Cultures made from these lesions contained the diphtheria bacillus. Cats fed on the milk from these cows contracted diphtheria. While there is no positive evidence that the milk in the udder contained the germ of the disease, there is every reason to believe that the milk was contaminated by the hands of the milkers.

The influence of mild cases of diphtheria in the public schools has a marked effect on the prevalence of the disease in this community. In one of the primary schools, a short time ago, where there had been an outbreak of diphtheria, four children were found attending school who gave unmistakable evidence of having diphtheria. The chart which gives the num

ber of cases of diphtheria reported in this city, by months, for ten years, shows that when the schools are in session the number of cases is much greater than during vacation time.




The result of the investigations of 500 cases of suspected diphtheria examined at the bacteriological laboratory of the Harvard Medical School proved conclusively the importance of a bacteriological investigation in cases of a doubtful nature. Of these 500 cases, diphtheria was found to exist in 133 instances, or 26.6 per cent. These investigations did not embrace the well-marked characteristic cases of diphtheria, but comprised those in which a diagnosis, so far as the clinical appearances were concerned, would have been impossible without a bacteriological examination.

Since the 1st of November, 1894, by an agreement of the Board of Health with Prof. H. C. Ernst, physicians have an opportunity to send cultures to the bacteriological laboratory of Harvard Medical School for examination. From the 1st of November, 1894, to the 1st of February, 1895, 1,846 cultures were examined, and of this number in 462 instances the bacillus of diphtheria was found. In 1,292 instances the bacilli were absent, and in 92 cases there were no growth. In regard to cases in which no growths were found, it may be said that this result is due to some error in technique. Allusion would not be made to this were it not for the fact that some physicians seem to think that when there is no growth that therefore the case is not one of diphtheria. Such is not the fact. In a culture taken from any throat there should always be a growth of some sort, if proper precautions are taken. In addition to the question of diagnosis the time when the bacilli disappears from the throat of a person who has been ill of diphtheria, and the time when this person ceases to be a source of danger to the community, can only be established by a bacteriological examination. The benefit of these bacteriological examinations is evident from the fact that in November and December, when these examinations were commenced, the number of reported cases of diphtheria was about 18 daily. They have now diminished to an average of about 11 a day. On the other hand, from November, 1893, to January, 1894, the disease showed a gradual increase from November to December and from December to January. The result of these investigations has proved that statistical compilation on the epidemic spread of diphtheria, as well as on the character of epidemics of this disease, cannot be considered reliable unless based upon bacteriological examinations of all cases of suspected diphtheria.

In regard to the treatment of diphtheria by the ordinary methods, very little need be said; thus far clinical experience has shown that in severe cases where there is a general infection of the system very little is to be hoped from the usual modes of treatment. When there is laryngeal obstruction, intubation and tracheotomy relieve the dyspnea, and frequently save life; but are powerless for good when there is a general infection of the system with the toxic principles derived from the growth of the diphtheria bacillus. A diphtheria patient dies from one of three causes: either from laryngeal obstruction or from toxic infection or from failure of the heart, due to the peculiar effect of the toxine of diphtheria on the nervous centres. To relieve the two latter symptoms, or, to speak more correctly, to prevent their occurrence, many things have been advised.

Peroxyde of hydrogen has its advocates. A weak solution of corrosive sublimate in the form of a spray has been tried; douching the mouth with hot water either pure or containing a certain amount of salt has been advised. The use of strong caustics must be deprecated, for they only destroy the mucous membrane and offer a favorable nidus for the extension of the disease. The experiments of Roux and Yersin show conclusively that the bacilli of diphtheria, as a rule, will not grow on intact mucous membrane. In these experiments the fauces of a certain number of guinea-pigs were painted with a virulent culture of the bacillus of diphtheria without any result. It was not until the mucous membrane was wounded that it was possible to infect these animals with diphtheria.

At the present time the attention of the profession, both in this country and abroad, is directed to the treatment of this disease by the use of serum from animals rendered immune to diphtheria.

Some three years ago Behring commenced his investigations upon the action of the antitoxins of diphtheria. These investigations have been conducted continuously up to the present time. Since 1891 Mr. Roux has pursued his investigations in the treatment of diphtheria by antitoxin; at first on animals and then on children. At the present time he states that the investigations in all essential points correspond to those published by Behring and his co-laborers.

The animals that are to furnish antitoxin are rendered immune against diphtheria, that is to say, they become accustomed to diphtheria, so that the diphtheritic toxine has no effect on them. The toxine is prepared by cultivating virulent diphtheria bacilli in bouillon for one month, at a temperature of 37° C. or 98.5° F., so that the poison may accumulate. Before commencing to prepare the toxine the virulence of the diphtheria bacilli must be tested by its effect on guinea-pigs. A procedure requiring less time has been advocated by MM. Roux and Yersin. This method consists in growing the cultures in a current of moist air. It must be borne in mind that in the preparation of antitoxin the bacilli of diphtheria are not used, but the substance caused by their growth,

the specific poison, caused by them, is used. Toxine thus prepared should be of such a virulence that one-tenth of a cubic centimetre should kill a guinea-pig weighing 500 grammes in from twenty-four to forty-eight hours.

Fränkel first rendered guinea-pigs immune against diphtheria by injecting pure cultures of the diphtheria bacillus which had been sterilized at 70° C. Since then Behring has recommended a mixture of toxine and Gram's solution of potassic iodide.

MM. Burger and Wasserman arrived at satisfactory results by growing a culture of the diphtheria bacillus in a bouillon made from the thymus gland. This culture had been exposed to a temperature of from 65° to 70° C., during a quarter of an hour.

The method which has given the best results is that used by MM. Roux and Vallard in their researches on tetanus. This method consists of the addition of three parts of Gram's solution consisting of iodine one part, potassic iodide two parts, and water three hundred parts to one part of the toxine. The injection is to be repeated after a few days, and either the dose of the mixture must be increased or the proportion of Gram's solution diminished. A little later the toxine can be given pure. It is sometimes necessary to omit the injection for a time, if the animal is losing in weight.

Dogs have been rendered immune against diphtheria by many experimenters, among the number Bardach and Aronson. Sheep and goats are quite sensitive to the action of the diphtheritic poison. The immunization of milk animals, as cows and goats, is of particular interest from the fact that the milk of these animals has a certain antitoxin power.

Of all the animals capable of furnishing great quantities of the anti-diphtheritic serum, the horse is the most easily rendered immune. He bears the toxine much better than any of the animals to which allusion has just been made. By injecting gradually increasing doses of the toxine at various intervals, the horse in two months and twenty days is rendered immune; that is, he can receive from 200 to 300 c. c., according to his weight, of toxine of definite strength without disturbance. The serum from this animal has a protective power of 50,000, that is to say, a guinea-pig resists the inoculation of one-half a cubic centimetre of a virulent diphtheria culture if it receives, twelve hours previous, an injection of the antitoxin equal in amount to a fifty-thousandth part of its weight. The curative action of the antitoxin has not been satisfactorily explained, but it appears from numerous experiments that this agent does not destroy the toxine, but that its remedial power is due to stimulation or some other special action on the tissue cells.

In some of the experiments made for testing the action of antitoxin, diphtheria was caused in female guinea-pigs by rubbing pure cultures of diphtheria bacilli on the excoriated surfaces of the vulvæ. In these cases the pigs recovered if the serum was injected before the inoculation, otherwise they died. A membrane was formed, at the point of inoculation, but there was very little constitutional disturbance. After the second day the false membrane became detached and repair of the mucous surface commenced. In these experiments the protected animals received one ten-thousandth part of their weight of serum.

The most interesting experiments to the physician were those in which guinea-pigs and rabbits were inoculated in the trachea. Guinea-pigs inoculated in this way died in three days, if not protected by the serum. When inoculated with diphtheria cultures, after having been injected with the serum, they did not contract diphtheria, if the dose was sufficiently large. The animals injected with toxine, after the serum treatment, gave no evidence of diphtheria. The presence of streptococci with diphtheria bacilli had an injurious effect on the action of the serum. Cases of this nature did not improve under the treatment because the cells depressed by the poison of the streptococci did not respond to the action of the serum.

In February of 1894 after the beneficial effects of antitoxin on animals had been proved, as the preceding brief *résumé* shows, the treatment of diphtheria by this method was commenced in the Children's Hospital in Paris. During the four years from 1890 to 1893, inclusive, in this hospital, 3,971 cases of diphtheria were treated, with a death-rate of 51.71 per cent. From February to July 24, 1894, 448 cases were treated, by antitoxin, with a death-rate of 24 per cent., a diminution of more than one-half. It should be said that all the cases treated by this method were extremely severe in their nature. It must also be borne in mind that in many of the cases there was in addition to the diphtheria infection a streptococcus infection which, as has been shown, has a nullifying effect on the action of antitoxin. The effect on the local lesions in the throat was similar to that observed in the experiments on guinea-pigs. MM. Martin and Chaillon have found, that of 120 children treated by antitoxin, 54 did not have albuminuria; 12 had this symptom one day, and 54 had it during the whole course of the disease. It seems, therefore, evident that the use of the serum diminished the action of the diphtheria poison on the kidneys, and therefore considerably diminished the frequency of albuminuria.

In the Children's Hospital in Berlin from 1891 to 1893, there were 1,081 cases of diphtheria treated, with a mortality of 38.9. From the commencement of 1894 to March 14th, 86 cases were treated with antitoxin, and the mortality has fallen to 13.2 per cent. Since the middle of March, 1894, according to the statement of Virchow in *La Semaine Médicale* of December 12, 1894, 303 of 533 cases of diphtheria admitted to the hospital were treated by antitoxin, with a death-rate of 13.5 per cent. Of the 230 who were not treated by the serum 47.82 per cent. died.

The following table compiled by Dr. Sims Woodhead shows the result of treatment by antitoxin in different cities. The whole number of cases treated was 2,237, with an average percentage of deaths of 20.2. The average percentage of deaths in cases reported to the Board of Health of Boston for the past ten years is 29.38. When the percentage of deaths from diphtheria in Boston for 1893 is compared with the average percentage in Woodhead's table, it is found that there is a diminution of 12.29 in cases treated by antitoxin, the former rate being 32.49 and the latter being 20.2. It will also be seen, from this table, that the percentage of deaths when antitoxin was not used was 45.6, while that where antitoxin was used was only 23.95, a diminution of nearly one-half.

So far as is known, there has been no injurious effect from the use of antitoxin. In some instances there has been a slight redness about the region of the injection; but this has not been sufficient to cause any annoyance. In a few cases a slight general erythe-

matous blush has appeared, which disappeared in a few hours; and in some instances there has been a marked attack of urticaria.

Dr. Morrill, in the *Boston Medical and Surgical Journal* of January 24, 1895, says that in the Children's Hospital, for the purpose of securing immunity, 50 children were given five cubic centimetres of antitoxin. In no instance was there any injurious result following the injection. Urticaria was noticed in four instances; slight diarrhea in seven; temporary increase in micturition in nine; anorexia and slight vomiting in four; well-marked tenderness over the site of the injection in two; erythema around the puncture in three. In one case 45 cubic centimetres were injected, but the child died sixty hours after the first dose. The autopsy proved that the patient died from a broncho-pneumonia and that the death could in no way be attributed to the injection.

RESULTS OF SERUM-THERAPY IN DIPHTHERIA.
DR. SIMS WOODHEAD.

| | Cases | Deaths | Mortality | Previous Mortality |
|---|---|---|---|---|
| Roux, Martin and Chaillon, Paris. | 448 | 109 | 24.5% | 51.7% |
| Ehrlich, Kossel and Wassermann, Berlin. | 220 | 52 | 23.6 | 34.7 |
| Canon, Berlin. | 15 | 3 | 20.0 | 25.0 |
| Schubert, Berlin. | 34 | 6 | 18.0 | — |
| Woswinkel, Berlin. | 60 | 19 | 33.3 | 46.5 |
| Ehrlich, Berlin. | 89 | 12 | 12.3 | — |
| Kossel, Berlin. | 233 | 54 | 23.0 | — |
| Körte, Berlin. | 121 | 40 | 33.1 | 53.8 |
| Bokai, Budapest. | 35 | 5 | 14.2 | 53.8 |
| Heubner, Budapest. | 96 | 37 | 38.5 | 62.5 |
| Katz, Berlin. | 128 | 17 | 13.2 | 38.9 |
| Aronson, Berlin. | 255 | 31 | 12.1 | 41.7 |
| Ranke and Outel, Berlin. | 19 | 4 | 21.0 | — |
| The *Lancet*, Austrian Riviera. | 70 | 7 | 10.0 | — |
| Weibgen, Berlin. | 65 | 18 | 28.0 | 40.0 |
| Muchlick, Philadelphia. | 2 | 0 | — | — |
| Dr. White, Willard Parker Hospital, New York. | 32 | 8 | 25.0 | 42.7 |
| Cases reported in the *Lancet* and *British Medical Journal*. | 79 | 9 | 11.4 | — |
| Trieste. | 236 | 52 | 22.0 | 56.0 |

A few words should be said regarding the manner of using antitoxin. In order to arrive at any satisfactory conclusions, it is all important that in every instance where antitoxin is used, there should be a bacteriological examination of the throat. It is also important that the urine of the patient should be examined for albumin before and after the injection. The dose for procuring immunity, according to some observers, is three cubic centimetres for any age over three years, and a half of that for younger children. For a cure of the disease during the first two or three days, under two years of age, ten cubic centimetres; from two to ten years of age, fifteen cubic centimetres; over ten years of age, twenty cubic centimetres. After the third day, in a severe case, a larger quantity may be used with positive advantage. If the disease does not seem to be ameliorated by the first dose a second should be given in twelve hours.

Roux states that his practise has been to give twenty cubic centimetres of serum to each patient on admission to the hospital, and the same quantity, or half the same quantity, according to the severity of the case, twenty-four hours afterward; and if the pulse and temperature still remain high, the same dose is repeated. He also adds that the smallest dose that he ever gives, in the first stage of the disease, is twenty cubic centimetres, and frequently, in severe cases, two or three times as much. There seems to be no doubt from the accounts published abroad as well as from the experience in this city that antitoxin is a remedial agent, of very great efficacy, in the treatment of diphtheria; that it will cure every case has not been claimed, that it is particularly advantageous in cases of mixed infection where streptococci and diphtheria bacilli are associated, has not been proved; but that it is an invaluable agent for the treatment of diphtheria has been abundantly shown.

One advantage of the treatment is, that after the injection into the back or abdomen there is no interference with the patient; no swabbing of the throat; no tearing of the mucous membrane. It is stated that even in the worst cases that proceed to a fatal end, there is a marked amelioration in the suffering; that the dyspnea is relieved to a certain extent. If the patient dies, his death is comparatively painless.

In regard to the kind of syringe that should be used, it must be said that the common subcutaneous syringe is not adapted for the purpose, because it cannot be properly sterilized by heat. Koch's syringe, which consists of a detachable rubber bulb, a glass barrel and a needle, is the most satisfactory instrument for this purpose. The barrel and steel needle can be put in a test-tube in the bottom of which a little cotton is placed, the tube plugged with cotton, and then put in the oven of a cooking-stove and kept at a temperature of 150° C., for half an hour or more, or until the cotton is slightly singed. A syringe prepared in this way will remain sterile for four or five days.

In conclusion it may be said, that antitoxin has now been in use for about one year, and that to-day the reports regarding its remedial power are made more favorable than they were ten months ago. It is, therefore, self-evident that in antitoxin we have an agent, that, while it will not cure every case of diphtheria, will have a very marked and decided effect in diminishing the death-rate from this disease.

## CRITICISM ON THE USUAL METHOD OF MEASUREMENT OF CHEST-EXPANSION IN LIFE-INSURANCE EXAMINATIONS, AND STETHOKYRTOGRAPHICAL STUDIES OF THE BILATERAL EXPANSION OF THE CHEST.

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MEASUREMENTS of thorax circumference on inspiration and expiration have a long time played a certain rôle in determining the condition of the lungs; but they have been put to no more universal use than in life-insurance examinations, where, as a rule, they have been and yet are compulsory.

The life-insurance companies have their questions to be answered by the examiner, such as: "Girth of chest under vest, forced expiration? Same, forced inspiration? Circumference of chest on full expiration In forced inspiration? How many inches does the sub-

ject measure without coat, round the chest, at the armpits, during forced inspiration and expiration? Is the expansion of the chest normal?" etc. These questions must be answered with exact figures or with more or less varying replies, such as, "of normal condition," "of ordinary expansion," or a simple "yes" or "no" — words usually clear enough, but in this case leaving altogether too much scope to individual opinion. In any case the answer must be based upon some kind of measuring, either with an instrument (measuring-tape, spirometer, thorakometer, etc.), or by the eye.

The above quoted questions seem to have gained favor the world over, for they are common to the Old and to the New World's most celebrated life-insurance companies; and yet they are far from being satisfactory, for what physician does not know that the changes in the lungs most to be feared, the tuberculous, begin in the apices (therefore high above the nipples, and considerably over the plane of the armpits), also that the total (that is bilateral) capacity may be "normal," while a greater or less part of the lungs is functionally incapacitated? The respective questions, therefore, involve too little, but they could not well be phrased otherwise, in view of the methods at present used.

As to these the thorakometer and compass, also the spirometer and pneumatometer are impractical, while the latter two are in some cases injurious to the health; for which reason the measuring-tape is generally used, which, however, cannot be comfortably and reliably placed any higher than the level of the nipples or thereabouts. Because the measuring-tape — which is unsatisfactory — cannot be placed higher than in one plane of the lungs which has so little to do with tuberculosis that it is only attacked in the last stages, the companies have inquired after the condition of the chest at this level, concerning which physicians waste their time in answering. By what has already been said, it can be seen that tape measurements of the "chest's deepest inspiration and expiration" are illusive and should not therefore be employed, especially in such an important examination as that in question. If one may draw conclusions from an unreliable method, the life-insurance company has to take greater risk and the insured person secures less justice. With life-insurance companies, the rule which governs shoemakers cannot apply: "that the certain pay for the uncertain"; but as a result of present measuring — methods of the expansion of the chest — it happens not infrequently that some of the insured ones receive "a clear paper," which is not deserved, while others get "a poorer certificate" than they should justly receive.

I may be permitted to add further criticism on the method of employing measuring-tapes in examination of the chest expansion.

The method of this measuring with the tape is, as is well known, to place the tape around the "patient's" thorax, from behind, forward, at the height of the nipples; to adjust it as it lies horizontally or somewhat symmetrically on corresponding points, and with the ends or points of contact so placed on the breast, that making fast the zero point, one can at once read its expansion upon the graduated tape. While the examiner tries to hold the tape with an even tension, the person examined breathes in and out as vigorously as he is able, whereupon the band or tape adapts itself as well as it is possible for it to do. The "patient" must, of course, stand as immovable as a statue and in some certain position, but there is no existing rule for this. He is allowed to raise one or both shoulders; bend his head — like a Chinese porcelain image — back at inspiration, forward at expiration; hold his hands on his hips, or let his arms hang down loosely; if only he will stand still and sigh — the deeper the better — without the examiner appearing to have the least idea what great differences of results occur in different positions. But, furthermore, it sometimes happens that with "weak eyes" and poor light, the examiner, after the deep inspiration has been made, moves one hand in order to fix the maximum point with the fingers, and then after the deep expiration, moves the other hand to fix the minimum point, in order after the band has been removed, to read between the fingers in some better lighted part of the room the difference between inspiration and expiration. Can any greater uncertainty in a physical method be imagined, any greater lack of scientific exactness?

He who has undergone observingly, such a measuring of the chest's power of expansion, has not failed to feel the uneven pressure of the measuring band at inspiration and expiration, owing to the fact that the examiner nearly always holds the band more loosely at inspiration and draws it more tightly at expiration, unconsciously suggesting that it is meant for the company's sake (if done in a life-insurance company's interest) and for the applicants to obtain the greatest possible difference; a phenomenon somewhat like "table moving," when the predisposing thought "it must move" is the power that unconsciously sets both arm and hand muscles and consequently the table in motion.

The *first* defect in tape-measuring is, therefore, that it lacks an unvarying, unbiassed pressure.

The *second* lies in the fact that the tape band often glides more or less easily, according as the skin is smooth or rough, dry or moist, in which latter case, it sometimes will not move but presses the skin.

A *third* defect is that the tape-measurement only records the bilateral total chest-girth. Therefore, one cannot measure the right and left side at the same time each by itself; and yet this is often necessary, for reasons easily understood. Who has not had experience with the vicarious functions of the organs, or how if one organ is sickly or weakened, its mate works so much the harder? For instance, in the case of inflammation of the lungs, the well lung becomes overworked for the sake of the sick one, etc. Therefore, by the use of the measuring-tape, one can easily gain a great bilateral difference between inspiration and expiration, displaying thus a great sum of capacity even when the expansive power of one lung is lowered, but when the well lung was obliged to bear so much greater share of the burden of respiration and to work so much more. To seek to measure the power of dilatation of the two halves of the chest with the measuring-tape, first the one from the processus spinosus to the middle of the sternum, and then immediately after the other half, and then to compare the results so obtained, is in the highest degree uncertain (even if the almost impossible case should arise in which every tape-measurement should be accurate); for what guarantee is there that one breath is drawn precisely as deeply as another. It is more probable that

after a very deep first breath, the lungs are in a sort of apnoe, and the one following is so much the more superficial (because the necessity for respiration this second time, thanks to O-surplus, is so much less); and the second tape-measurement in this case gives too low a result.

The custom of measuring on a level with the nipples seems passing strange, just as one is surprised that in many blanks, not a word is to be found about the height at which the measurement shall be taken, precisely as if it made no difference about the plane.

When we know that tuberculosis first attacks the apices, and that the more diseased a part of the lung is, just so much more the healthier parts must work, it is easily understood that the coefficient of expansion on the mammillary plane will be, not only relatively too high, but also, perhaps, really greater where there is a mild affection of the apex of the lung than if the person in question were healthy. A great degree of expansion in the mammillary plane may, therefore, be rather a "memento" than a proof of healthy lungs. Why then not take the measures upon the supra- and infra-clavicular regions, or in their immediate vicinity? Simply because it cannot be done with the measuring-tape. The forward springing posterior and anterior axillary folds are so many hindrances for the measuring-tape, which it cannot gauge so easily as the smooth path round the mammillary plane, and carries the measuring-tape sidewise, upward against the upper chest aperture; the tape rolls up more or less, or "cuts in" under the arms and is hindered then in its movements; so that, even if the measuring be not wholly impossible, it will be at least more unreliable.

From this it will appear that the method of measuring the chest-expansion with tape is to be rejected. It does not conform to the exact requirements of science, and therefore should not hold the prominent place it does at present, in so many cases of chest measurement, namely, in life-insurance examinations. There is no doubt, on the contrary, that measurements of the thorax expansion may be of great service in making a perfect diagnosis for the final decision as to the condition of the lungs, if only a practical and reliable method of examination were adopted. I have, therefore, sought to construct a little autographic instrument which might possess the advantages denied to the measuring-tape, namely, the stethokyrtograph, the description of which is to be found in the *New York Medical Record* of the 8th of March, 1894, to which you will permit me to refer you.

If it has been demonstrated that the tape, in measurements of the chest-expansion, as a rule, gives unsatisfactory and unequal results, it cannot, however, be denied that an experienced hand may in favorable cases get results approximately good enough to control other measurements. After a number of tape-measurements (for the purpose of getting the right sense in the hands), I have, therefore, made the following comparative measurements between the tape and the stethokyrtograph, in order to test the accuracy of the latter.

### COMPARISON BETWEEN THE RESULT OF MEASUREMENT OF CHEST-EXPANSION WITH THE MEASURING-TAPE AND WITH THE STETHOKYRTOGRAPH.

It can be set down *à priori* that a critical and conscientious measuring of the chest with the measuring-tape will give a lower result than with the stethokyrtograph, for, as has been before maintained, the measuring-tape clings more or less to the body, and so has even on a dry skin a greater resistance to overcome than the gimp which with the exception of the back, comes only tangentially into contact with the fourteen small metal discs.

On the other hand, the stethokyrtograph would seem to give too high a result, because the gimp slides on the discs three, five, seven or nine millimetres distant from the surface of the body. The weight of the cylinders often presses down the discs into the skin and lessens the height; a large part of the gimp nearly touches the skin of the chest; the "ends of the chain," the two stationery discs, lie lower than the nearest movable discs; the gimp cuts into the back more than glides; all of which conditions, however, clearly reduce the apparently too great result obtained by the use of the stethokyrtograph.

If the results of the measuring-tape, often too low,[1] be compared with those of the stethokyrtograph, the latter are found to be just as much higher as one would suppose the correct ones to be. Also, if the results with the stethokyrtograph should have been too high, this signifies nothing. The most important point is that they give reliable comparisons of the two halves of the chest, between the respective expansive capacities of the lungs; and this they seem to do.

A computation from Table 7, "Comparison of Bilateral Measurements, etc.," shows that the results with the stethokyrtograph were as follows:

MALES.

| | | |
|---|---|---|
| In 16.2% cases, | . . . | .5– 9 mm. less than with tape. |
| 2.7% " | . . . | the same as with tape. |
| 56.7% " | . . . | .5–10 mm. greater than with tape. |
| 13.5% " | . . . | 11.0–20 mm. " " |
| 8.1% " | . . . | 22.0–27 mm. " " |
| 2.7% " | . . . | 36 mm. " " |

FEMALES.

| | | |
|---|---|---|
| In 23.8% cases, | . . . | 1.0–11 mm. less than with tape. |
| 0.0% " | . . . | the same as with tape. |
| 31.0% " | . . . | .5–10 mm. greater than with tape. |
| 34.5% " | . . . | 10.5–19 mm. " " |
| 3.4% " | . . . | 26 mm. " " |
| 3.4% " | . . . | 31 mm. " " |
| 3.4% " | . . . | 44 mm. " " |

Or collectively, with 66 comparisons of 37 males and 29 females:

| | | |
|---|---|---|
| In 19.7% cases, | . . . | .5–11 mm. less than with tape. |
| 1.5% " | . . . | the same as with tape. |
| 45.5% " | . . . | .5–10 mm. greater than with tape. |
| 22.7% " | . . . | 10.5–20 mm. " " |
| 6.0% " | . . . | 22.0–27 mm. " " |
| 3.0% " | . . . | 31.0–36 mm. " " |
| 1.5% " | . . . | 44 mm. " " |

The stethokyrtograph's superiority has thus been in 45.4 per cent. cases .5–10 millimetres; or, if one will, in 68.1 per cent. cases one centimetre on the average, depending certainly on its superiority in sliding.

Convinced of the reliability of the stethokyrtograph by thousands of measurements with it, I will now quote only the results of these measurements in

### THE BILATERAL (TOTAL) CHEST-EXPANSION.

The results have been arranged in tables,[2] in order to facilitate reference to them, Nos. 1 and 2 containing 517 persons each (of whom 315 are men, 202 women). Nos. 3 to 6 each contain 636 persons (401 men, 235 women) of varying ages, from three years to nearly ninety years; of unequal height, from that of the dwarf to that of a giant almost; also of different

[1] This is only a question of the critical and self-evident examinations.

[2] For lack of space, the tables, with one exception, have been omitted.

occupations, though the majority of them belonged to the country population. As lung-tuberculosis has been uppermost in mind, the persons have been placed in four principal groups, according to the condition of the lungs, namely: "Sound," "Sound, with prolonged sound of expiration," "Infiltration" and "Consumption." By which is meant that the "Sound" are persons in whose lungs the sound of respiration (in the apices) was softly vesicular and the sound of expiration shorter than that of inspiration; "Sound, with prolonged sound of expiration" are those whose breathing has the same sound as the foregoing group, but in which the expiration sound was at least as long as that of inspiration. Both groups have, as a rule, been "easy-breathing," have not lost breath from running, climbing stairs, etc. The group "Infiltration" includes cases where the sound of respiration — especially expiration — was rough or harsh, the expiration prolonged, and breathing not so easy as in the foregoing groups. Under "Consumption" have been classed those with pneumonia chronica, those with more or less advanced phthisis pulmonis. Other chest diseases, such as chronic bronchitis, heart-failure, a couple of cases of pleuritis, etc., have been met, but were so few in numbers that on the whole they signified little. They have been grouped according to the above principles.

It is scarcely necessary to add that all who have been examined have had to take the position necessary to the use of the stethokyrtograph, that is, they have stood immovable, with the head bent forward, hands resting lightly on the hips, shoulders still, etc., and the breathing has been "deep and slow," as deep as possible without changing the position of the body in any respect.

On examining Table 1, we see the 517 persons divided into six groups, according as the expansion of the chest in the "subclavicular plane" was 80 mm. or more, 70 to 79.6 mm., 60 to 69.5 mm., 50 to 59.5 mm., 40 to 49.5 mm., or under 40 mm., independent of the condition of the lungs.

Few persons (18, or 3.5 per cent.) belong to the first group, of greatest expansion, with ages ranging from eight to sixty years, and the height from that of a child to the average of an adult. No height of 180 cm. or above (5 ft. 11 in. or above) has appeared in this group, neither has any consumption. The majority of persons having the lungs "Sound, with prolonged sound of expiration" are of average height, 170–179.5 cm. (5 ft. 7 in. to 5 ft. 11 in.), and mostly young or in early middle age, that is, from fifteen to twenty or thirty to thirty-nine years old. Of the eighteen here only one was a woman, of good average height and in her "best years."

The next group, 70 to 79.5 mm., contains 27 persons, or 5.2 per cent., mainly like the foregoing group, with the addition that very tall persons (180 cm. or more) are found represented here.

The third group, 60 to 69.5 mm., includes 80 persons, 15.5 per cent. of all examined — persons of all ages, all sizes and of all conditions of the lungs.

The three remaining groups, 50 down to less than 40 mm., with about 25 per cent. each of the number examined, also include persons of all ages, sizes and conditions of lungs.

The question of the expansion of the chest can be answered, according to Table 1 thus:

The greatest chest-expansion in the subclavicular plane, 80 mm. or more ($3\frac{1}{8}$ in. or more), does not accompany developed consumption, and only in exceptional cases "infiltration."

A chest-expansion on the subclavicular plane of 70 to 79.5 mm. ($2\frac{3}{4}$ to $3\frac{1}{8}$ in.) does not accompany developed consumption, but is not infrequent with "infiltration."

A chest-expansion on the same plane, below the last-named limit, can, on the contrary, be met in the perfectly "sound" as well as in those with consumption.

Concerning chest-expansion in the mammillary plane, it may be seen by Table 2 that on the whole it resembles the subclavicular plane, only being upon an average about 10 to 15 mm. higher, according to the anatomical form of the chest, in the majority of cases.

The numbers in the higher groups have, therefore, increased, while those of the lower groups have decreased correspondingly.

In the highest group 80 mm. or more ($3\frac{1}{8}$ in. or more), there is, therefore, no consumption found, but very tall persons (180 cm. or over, 5 ft. 11 in. or over) have gained entrance into this group. The number with "infiltration" has increased.

The next group, 70 to 79.5 mm., contains, on the contrary, several with consumption, and also persons of all ages, sizes and conditions of lungs, precisely like the remaining groups.

The question of the expansion of the chest on the mammillary plane, can, according to Table 2, therefore be answered thus:

The greatest chest-expansion on the mammillary plane, 80 mm. or over ($3\frac{1}{8}$ in. or over), does not accompany developed consumption, but is not infrequent with "infiltration."

A chest-expansion on the mammillary plane, below the last-named limit, can, on the contrary, be met as well with the perfectly "sound," as with those having consumption.

Table 3 shows only that the plurality of chest-expansions belongs to the smallest sizes, 40 to 69.5 mm., but as a rule, higher numbers for men than for women. A noteworthy exception, however, appears in the group of men fifteen to nineteen years old, "Sound, with prolonged sound of expiration," where, in the sub-clavicular plane, a chest-expansion of 80 mm. or over appeared in not less than about 25 per cent. of cases, and in the mammillary plane on the average, an unusually high expansion figured. In the remaining groups, such a high record of expansion has seldom appeared.

Table 4 shows how infinitely varying the total chest-expansion can be in the same group of persons, and in the subclavicular as well as in the mammillary plane; it shows us the records of the lowest limit so low that we might think they represented only the lightest breathing (and yet the examined ones have done their best to breathe as deeply as possible without changing the position of the body), while the figures of the highest limit are so high that they rival the high figures uncritically so often obtained with the measuring-tape. There is no doubt that some of the lower figures could have been raised, if the patient had practised "breathing after command," for many persons seem to find difficulty in breathing calmly and deeply while the physician stands ready to measure the expansion of the chest; but in reality these measurements have been made under the same conditions as

the usual life-insurance examinations, and have, as a rule, been made without previous training of the patient. Besides, there is a class of persons who seem to have a very slight expansion of the chest, even when the condition of the lungs is good; for instance, the very fat, because with them, chest-expansion has been constantly and unexpectedly small, in men as well as women. One often gets the impression from their breathing that they prefer to increase the frequency rather than the depth of their respirations, and that habit finally prevents them from breathing deeply or expanding the chest appreciably which is intensified by a certain change to fat of the outer muscles of respiration *in modo circuli vitiosi*.

It may be specially stated that the lowest chest-expansion never accompanied consumption, either in the subclavicular or mammillary plane; and as to the figures recorded in consumption, they are not so low, and many times are as high, especially in the mammillary plane, as for "Sound." The greatest chest-expansion that has occurred in the subclavicular plane, 104.5 mm. ($4\frac{3}{16}$ in.), was that of a professional runner, especially interesting because his lungs gave out a respiratory sound far from normal physiologically. The man had trained his lungs, and what was lacking in quality was supplied by the quantity of vesicular working capacity. The highest figures in the subclavicular plane have belonged to the group "Sound, with prolonged sound of expirations," and nearly always at all ages (to this belonged the case quoted above), depending, as probably indicated, upon the fact that while these persons are "sound" in their functions, and the demand on the lungs is in proportion thereto, nature compensates the little change which is here represented by "prolonged sound of expiration" by allowing the chest — that is, the lungs — hyperdilatation, as it were, and for day after day. A portion of the lung having a physiological sound of respiration, the expiration shorter than the inspiration, would, for lack of exercise, not be expanded so excessively, as a rule, as a portion with vesicular respiration but with a "prolonged sound of expiration," at least, not before training had come to help it. This tendency to increase the chest-expansion seems to continue so long as the part of the lung beneath is not too diseased. For we constantly find it, as before stated, in the subclavicular plane, for the group "Sound, with prolonged sound of expiration," and quite often in the group "Infiltration"; whereas in the group "Consumption," although the disposition is certainly to be noticed, it is not sufficient for so great expansion of the chest as in the best cases of the preceding groups.

Looked at broadly, the same tendency is detected in the mammillary plane. In the group "Sound" one often gets higher figures than in the subclavicular plane (corresponding, one might think, to the anatomical form of the chest), and therefore in the groups "Sound, with prolonged sound of expiration" and "Infiltration," often higher figures than in the first named; but what is still more noticeable is, the high figures in the mammillary plane for the group "Consumption" show that the chest-expansion was just as high, sometimes higher, than for "sound" persons of the same age.

As to the relation of chest-expansion in the subclavicular and mammillary planes, the latter has generally been 10 to 20 mm. greater in the same person. It has happened often enough, that persons have been found having dilatation in the mammillary plane less than in the subclavicular; and it has often happened that a renewed examination gave the same results, but not infrequently it has depended on the fact that the patient was tired after the first examination, which was always the one in the subclavicular plane. The figures in Table 4 do not always correspond, therefore; and probably the figures in the mammillary plane would often have been 10 to 20 mm. higher if the examination had begun in that plane. The greatest chest-expansion (106.5 mm., $4\frac{3}{16}$ in.), was that in the mammillary plane of a "sound" averaged-sized soldier thirty-two years old, with unusually fine chest, and not especially trained lungs.

Moreover, the tables show that during childhood is established — because of the more movable chest — a comparatively greater chest-expansion; also that a great expansion of the chest may remain (80 mm.) even to the early years of middle life.

By Tables 5 and 6 it appears that the average chest-expansion is not great, and that the difference in the various groups is not so great as *à priori* one would expect. If the chest expansion in the subclavicular plane for groups "Infiltration" and "Consumption" — which have mostly shown 40 to 49.5 mm. — are excepted, then in the rest of the cases the expansion in both planes, on an average, has been 50 to 59.5 mm., with distinct tendency, to be sure, for the consumptives to fall below these figures in the mammillary plane, even. As we have already seen by Table 4, the expansion of all groups fluctuates considerably, above and below these limits. From Tables 5 and 6 it is further seen that the chest-expansion of women in all groups has been, as a rule, lower than of men, which has not prevented some exceptions here and there.

Regarding the expansion of the chest or the bilateral differences between dilatation of the chest with deep inspiration and expiration, as I have already in some regards shown in an article in the *New York Medical Record*, March 3, 1894, p. 264, they seem to vary within considerable limits, in the subclavicular plane from 14 to 104.5 mm. in the groups "sound" and "sound, with prolonged sound of expiration," also from 14 to 81 mm. in the groups "Infiltration" and "Consumption"; and in the mammillary plane from 17 to 106.5 mm. in the former groups, and from 85 to 91.5 in the latter.

The expansion, however, has been in the most of my 517 cases in the subclavicular plane only 50 to 59.5 mm. in the two first groups, and 40 to 49.5 mm. in the second two groups; and in the mammillary plane respectively 50 to 69.5 mm. and 40 to 59.5 mm. The measurements were taken only on Swedes.

The result of these studies of bilateral or total chest-expansion is this, that one cannot, as a rule, draw any conclusions about the condition of the lungs from measurements of the bilateral girth of the chest at the time of deepest inspiration and expiration, or from measurements of the total chest-expansion in some certain plane, be they made on the subclavicular or the mammillary plane, and that such measurements, therefore, should not be taken into consideration in life-insurance examinations, and least of all should they be used as the basis of judgment as to the applicant's place in the "risk scale." The only measurements of the bilateral or total size of the chest which

ought to exist, and which, therefore, ought to be introduced, are in my estimation, those as well in the plane of the axillary folds as in the mammillary plane (or at least in the latter), while the chest is at rest, that is to say, during the faintest respiration; because these measurements give a certain idea whether the normal proportions of the body are ascertained or not, precisely as so often happens in the present life-insurance examinations, that the abdomen is measured to see if it corresponds to the proper proportion between abdomen and body's length, etc. For such measurements the tape is adequate, if critically and carefully used; just as surely it is to be condemned in measuring the expansion of the chest.

If the bilateral (total) measurements of chest-expansion have been cast aside as meaningless, then it remains to investigate whether the "contemporary unibilateral," that is, the "simultaneous single and double-sided" measurements can be of any practical value; but that subject may be left for another paper.

## VAGINAL HYSTERECTOMY AFTER MARTIN'S METHOD.[1]

BY HOWARD A. LOTHROP, A.M., M.D.

VAGINAL hysterectomy is now recognized as a perfectly legitimate operation, and is generally acknowledged to be the most desirable mode of procedure in certain cases, hence, most gynecologists are accustomed to practise one or other of the various methods devised for the vaginal extirpation of the uterus. The earliest operation was performed by the elder Langenbeck; but this route for uterine extirpation failed to receive much attention until 1878, when Freund established certain methods of procedure which still serve as the basis for this operation, although different operators have devised more or less radical modifications.

Having had an opportunity to observe the methods of some of the most skilful operators, the technique adopted by Martin, of Berlin, appears to me as possessing the most advantages, and the reasons for my conclusion I shall hope to make clear later. His early cases date from 1880; but at that time this operation was tedious and attended with considerable risk to life, either from hemorrhage during the operation or from sepsis soon after, while the statistics were far from being encouraging. As performed at the present time by Martin himself, this mode is the most rapid, attended with the least hemorrhage and fewer accidents during the operation, and less liable to be complicated by septic infection during convalescence, than any method I have had the opportunity to follow. My sources of information for this communication, are personal observations and Martin's publications.

The indications for uterine extirpation, according to Martin, I will briefly enumerate as follows:

(1) Carcinoma of corpus or cervix.

(2) Sarcoma.

(3) Adenoma.

(4) Certain cases of prolapse not amenable to other less radical mode of treatment.

(5) Also, wherever the patient becomes a chronic sufferer, or runs the risk of losing life by the non-removal of the uterus, as might occur in: *a*, persistent uterine hemorrhage; *b*, dysmenorrhea persisting in spite of all attempts for relief; *c*, myomata; *d*, certain suppurative conditions of the uterus; *e*, certain cases of rupture of uterus in connection with pregnancy, or as the result of a necrobiotic change.

If feasible, the vaginal route should be chosen; but if not practicable, we should resort to the abdominal method.

The contraindications for vaginal hysterectomy are:

(1) Extension of malignant disease beyond the uterus.

(2) Large size of that organ, particularly if rigid and not pliable; and these points must be determined by the examiner for each individual case.

(3) Presence of adhesions between uterus and other pelvic organs, which render extirpation difficult and wearisome, and may interfere with convalescence, as being the source of hemorrhage and oozing; and furnishing a nidus for a septic infection.

To this last group belong more than fifty per cent. of Martin's fatal cases; and the improvement in his statistics of late is, in part, due to the fact that he is less prone to operate on these cases per vaginam. Hence, given a case where extirpation is indicated, Martin would choose the vaginal route as most appropriate for some cases, the abdominal for others, and the question of choice would depend on his judgment, there being no hard and fast lines to serve as guides.

### PREPARATION FOR OPERATION.

On the day before operating the patient should take a warm bath, and a suitable cathartic should be administered. Before undertaking such an operation, all patients should be carefully examined while under the influence of some general anesthetic, in order to determine the exact condition of the pelvic organs, particularly as regards the size of the uterus, the presence of adhesions, and the possibility of any further complications which would contraindicate a vaginal hysterectomy. This opportunity should be taken advantage of, and the vagina carefully cleansed with soap and water and weak antiseptic solutions. All ulcerations of the cervix should be carefully curetted and cauterized if necessary, so as to remove as much source of infection as possible, and then the vagina should be packed with iodoform gauze, which is to be retained until just prior to the operation. If the endometrium is in a septic condition the uterus should be carefully curetted.

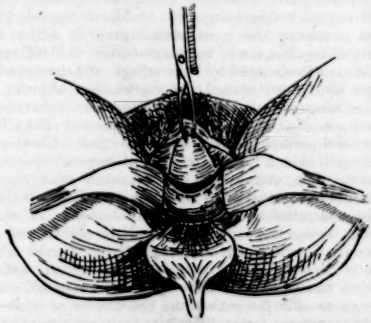
Just prior to the operation on the following day, the rectum should be carefully cleansed by enemata, and the anesthetic administered. At this time the vaginal tampons (if any have been introduced) should be removed, and the vulva and vagina made as aseptic as possible by the use of weak antiseptic solutions. The bladder is not to be emptied, but is to remain distended with urine until the operation has been completed.

The only necessary instruments are the following: one perineal and two lateral retractors (after Martin's pattern), two pairs of so-called "bullet forceps," one pair long curved scissors, one pair long-toothed dissecting-forceps, needle-holder, several strong curved needles of different sizes, and a scalpel, catgut of large size serves for ligatures and ties. In addition, a douche apparatus should be arranged on the fountain plan, so that a very small constant stream of boiled water or a solution of corrosive sublimate (1–20,000), can be made to play over the field of operation, the advan-

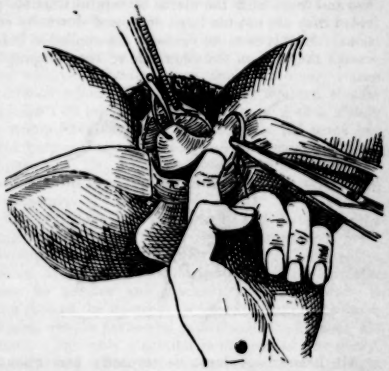
[1] Read before the Obstetrical Section of the Suffolk District Medical Society, January 23, 1895.

tage of which will be mentioned below. No sponges or clamps of any sort are ever used, thus saving much time and annoyance. There should be three assistants in addition to the one administering the anesthetic.

All hands and instruments having been rendered aseptic, the vulva and vagina as nearly so as possible, the patient is put in the lithotomy position facing a good light. The operator takes his seat in front. While the assistant on the patient's right attends solely to the perineal and right lateral retractors and corresponding leg, the assistant on the left looks after the left lateral retractor with his left hand, while the right holds both the nozzle of the fountain syringe and the "bullet forceps" which have been attached to the cervix, thus constantly irrigating the field of operation and exerting traction on the uterus as may be desired. The hands of the third assistant are free to pass instruments, thread needles, and attend to any wants of the operator that may arise. This small current of water does away with sponges, and many of the operations appear almost bloodless.



The retractors having been properly placed, the first step in the operation consists in applying the "bullet forceps" to the posterior lip, and, without any hesitation whatever, drawing the uterus as far out of the pelvis as possible, so that the cervix will rest on the pubic arch. This renders the field of operation readily accessible, and makes the posterior vaginal wall tenser, showing where the line of attachment of vagina to cervix is to be found. On this line, transversely, the first incision is made, which severs the posterior attachment of the vagina from the uterus. Under normal circumstances this incision would open the cul-de-sac of Douglas; but if there are adhesions, the operator should carefully work his way up between the uterus and rectum, keeping close to the former until the peritoneal cavity is opened. There will be no bothersome hemorrhage, provided the cervix uteri is strongly drawn forward and upward, so as to rest on the pubic arch, and the field of operation constantly irrigated, both of these duties being performed by the right hand of the assistant on the patient's left. The next step is the application of four or five catgut sutures, by means of a small strongly curved needle, to the severed end of the vagina. It is of the greatest importance that these sutures include the free edges of the peritoneum and vagina, as well as the connective-tissue between, the needle coming out about one centimetre from the point of entrance. Thus the hemorrhage is stopped at once, and the connective-tissue spaces shut off from the danger of infiltration. If there should be any hemorrhage from the uterine end of the incision, a large ligature is passed through the cut surface of the uterus, and the ends left long, so as to retract the uterus. Then with the cervix strongly drawn to the patient's right, the left forefinger, as a guide, is introduced into the fossa of Douglas, and sutures are firmly applied to the left side-wall of the vagina just distal to the cervical attachment, and the vagina severed close to the cervix, a small amount of tissue being cut with the scissors after each suture has been applied. Just as was done posteriorly, the peritoneum and vaginal wall are closely approximated. The deeper sutures on the side should be very carefully and firmly tied and left long, so that, after the uterus has been severed, this mass can be pulled down and be securely fixed between the free edges of the



peritoneum and vagina. The important uterine artery, which enters the uterus near the junction of the corpus and cervix, is then first securely ligatured and then severed. The right lateral vaginal wall is cared for in a similar manner; three or four sutures suffice for each side. The higher up in each side the uterus is severed, just so much easier it is to invert that organ later.

The anterior vaginal wall remains to be freed. To accomplish this the cervix is pulled out and down so as to render the parts tense. The lateral incisions are united by one passing around the cervix in front, along the line of vaginal attachment, keeping close to the cervix and merely going through the vaginal wall. With the finger, the bladder (now distended with urine), is carefully separated from the anterior surface of the uterus until the anterior cul-de-sac is reached, and then the peritoneum is opened, leaving the uterus suspended only by the lateral ligament. Peritoneal and vaginal edges are united just as was done posteriorly and on the sides, the bladder being carefully pushed forward and kept from injury; about four sutures serve this purpose.

All hemorrhage having been stopped, the finger is introduced into the posterior cul-de-sac, and the uterus carefully explored as regards size and the presence or absence of adhesions. If small and pliable, it can be readily rotated on the lateral ligaments, and the fun-

dus extracted through the posterior opening, merely by the use of the fingers, or aided by bullet forceps. If large and not pliable, this may be a very difficult part of the operation; and, as further aid, the posterior opening can be kept dilated by means of a spatula, so that traction on the fundus can be accurately applied by means of forceps, while the finger of the other hand pushes the cervix up behind the pubic arch. Pressure over the hypogastrium should never be resorted to.

Three ligatures, applied in the ordinary manner suffice to tie off the lateral ligaments from the uterus, thus completely severing it from its pelvic attachments. If only the uterus is to be removed, they should be applied close to that organ, which is then severed and the catgut left long, so as to control the free ends of the lateral ligaments. In the majority of cases, it is possible, if desired, to remove the ovaries and tubes with the uterus by careful traction, provided they are not too large or bound down by adhesions. In this case the ligatures are applied as before, except they are on the other side of these organs.




All hemorrhage must be stopped; and when assured that there is to be no danger from this source, the edges of the lateral ligaments are carefully pulled down even with the free edge formed by the peritoneum and upper end of the vagina, and then all these free edges united by a continuous transverse catgut suture. If viewed from the abdominal cavity, all we would see at the site of operation is a short transverse line, formed by the approximated surfaces of peritoneum, which readily adhere and serve as a barrier against infection; viewed from the vaginal end a small, puckered, wounded surface over which iodoform has been dusted. No tampon is left in the vagina, nor is any drainage-tube used; and on completing the operation, the patient should be catheterized for the first time.

During the operation the intestines are very rarely seen, and with care there is but slight risk of injury to the bladder or ureters. In well-chosen cases there is but slight risk of hemorrhage, which is apt to be very annoying in cases where adhesions have to be overcome. The secret of rapid and successful removal of the uterus by this method, depends largely upon the ability of the operator to handle the curved needle, while the work is made much easier by remembering the fact that the uterus can be drawn well toward the vulva.

The after-treatment is merely expectant and the danger during this period is that of sepsis. Unless called for by the general symptoms, the wound is not inspected until the fourteenth day, when the stitches, which have not been absorbed, are removed, while on the twelfth day the patient is allowed to leave the bed. A profuse secretion is the signal for vaginal douches. The catheter is used if necessary, and the bowels are moved on the fourth day by enema.

STATISTICS.

Comparative statitsics for different methods by different operators are of but little value as determining the merits of any mode of procedure. Some operate hopeless cases, others weigh the probabilities with the greatest of care before they will risk operation; some tabulate all their cases; others neglect to report failures. From 1880 to 1887, Martin removed the whole uterus per vaginam 106 times, with 14 deaths as result of operation; from 1887 to 1893, 153 times with 14 deaths. Of the fatal cases about one-half were due to sepsis, while embolus, shock, and broncho-pneumonia figure as the remaining more common cause.

Having seen different operators and various methods of vaginal hysterectomy, that of Martin appeals to me as possessing the most advantages. It is the most rapid, requires fewer instruments, the field of operation is not obscured by hemorrhage, and the cut edges are all turned toward the vagina, thus allowing for free escape of all exudation, while the approximated surfaces of peritoneum rapidly adhere and shut off the general peritoneal cavity from infection. Cases must be well chosen for any method of removal per vaginam. The uterus must not be much enlarged, and should be comparatively free from adhesions, otherwise the abdominal route should be selected. If malignant disease has extended beyond the uterus, any procedure is practically hopeless. Given a case where total extirpation is indicated, the vaginal method, when practicable, *as done by Martin himself*, seems to me to offer the patient the best chance of recovery, and to present fewer difficulties for the operator.

## Clinical Department.

### A SUCCESSFUL OPERATION ON A SPINA BIFIDA.

BY SAMUEL BAYARD WOODWARD, M.D., WORCESTER, MASS.,
*Surgeon to City and Memorial Hospitals.*

The large mortality of the surgical interference with spina bifida, whether by tapping, injection, ligation or excision, has been so discouraging that one almost confidently expects on the third or fourth day that gradual rise of temperature indicative of beginning infection of the meninges with its invariable termination.

Not infrequently either does everything apparently progress favorably for even seven or eight days, with the then insidious or sudden change for the worse and the soon following fatal ending.

The favorable issue of the following case under somewhat unfavorable circumstances leads me briefly to report it.

February 18th of this year, I was asked by Dr. E. L. Sawyer, of Barre, to see a child born under his care eight days before. An otherwise well-nourished, perfectly-formed male child had in the lower cervical

region a semi-transparent, thin-walled pediculated tumor the size of a baseball. The pedicle at its junction with the body about two inches in circumference, was covered with apparently normal skin, which also reached about an inch up the cyst wall on every side. The remaining wall was thin, translucent, and where it rested on the child's back discolored and apparently breaking down, while from a minute perforation at its most prominent part was oozing a watery fluid somewhat stained with blood. Pressure, carefully applied, lest the cyst should rupture prematurely, caused no disturbance, nor could the size of the tumor be perceptibly diminished.

As the sac was evidently about to rupture, there could be little question as to the proper course to pursue; and after a somewhat imperfect cleansing of the base of the cyst, chloroform was given, a trocar introduced, and about six ounces of fluid as clear as spring-water withdrawn. The thumb and finger being as closely as possible applied to the base of the cyst to limit the loss of cerebro-spinal fluid, and the child being also kept in a prone position, the sac was then laid open and examined. It was judged that the closure of the sixth and seventh cervical vertebræ was imperfect. With the exception of a small opening at the upper portion of the cleft from which when pressure was removed clear fluid exuded, this cleft was filled with a dark cord, which ran straight across the cyst cavity to the point where was the opening previously described. This cord was of the size of a lead pencil, and seemed to largely consist of blood-vessels, though from various points on its circumference ran in all directions minute nerve fibres to the cyst-wall.

Quilting sutures of silk, one of which surrounded the base of this cord were introduced through skin and sac at the base of the pedicle in such a way as completely to obliterate the cavity. The cyst and redundant skin were removed, and the resulting raw edges carefully approximated by numerous fine sutures. A voluminous dressing of baked gauze carefully bandaged on completed the operation and the child was left to the care of the trained nurse fortunately present. It is needless to say that instruments, hands and sponges were carefully sterilized.

The inaccessibility of this patient to Dr. Sawyer, eight miles from his house over roads almost impassable after the severe snowstorms of the winter, which had prevented him from seeing the mother after her confinement until he went there with me, caused his first visit to be made only on the third day, when the quilting sutures was removed, and his second on the eighth, when the superficial ones were taken away.

A note from the nurse, Miss McGill of the New England Hospital, informs me that the baby slept well, ate well, grew very rapidly, and gave no sign of disturbance from the wound in the neck. The temperature taken thrice daily, reached 101.5° twenty-four hours after the operation, and fluctuated between 99° and 99.7° until the removal of the stitches.

The child is now well, with no sign of the tumor beyond a slightly projecting ridge. Dr. E. H. Baker, of Worcester, who kindly examined the specimen, could find but little in the cord alluded to in addition to the vein and artery, which were of large calibre.

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A WRITER in the *Southern Practitioner* for May, 1895, speaks of ovariotomy as the "emasculation" of women, evidently using the word in its secondary sense.

## Medical Progress.

### REPORT OF PROGRESS IN GYNECOLOGY.

BY F. H. DAVENPORT, M.D.

#### SUPRAPUBIC FIXATION OF THE UTERUS IN CERTAIN CASES OF RETROVERSION AND PROLAPSE.

DR. THOMAS KEITH [1] describes an operation for cases of intractable retroversion and prolapse which has proved efficacious in his hands. The uterus is pushed up against the abdominal wall with a sound, and a small opening made over the fundus a little larger than sufficient to admit the forefinger. Guided by the finger the right round ligament is seized by forceps, and slowly pulled up with the broad ligament until the ovary is reached. This is brought out with as much of the broad ligament as will come, and the pedicle drawn together by a small silk thread and tied. The stump being held by forceps, the abdominal wound is accurately closed with several sutures, care being taken not to strangulate the stump. This is dried with perchloride of iron, and the ordinary clamp applied on a level with the encircling ligature, so that the tissues do not spread out, and there is thus a slender stump left to separate. In none of the cases has there been a trace of hernia, and no wound has ever suppurated. Dr. Keith has done the operation 34 times, and his son, 17, and all the patients were cured permanently.

The advantages of the operation are, that the uterus being attached only by the right ligament has freer movement than by any other method; there is less risk to life, as there is no invasion of the cellular tissue by needles and stitches; and the fixation is more sure as the ligament is fastened into the wound, whereas simple peritoneal adhesions may become absorbed. The only objection is the loss of one ovary, but one ovary seems to be as useful as two. The right ligament is chosen, because if the left is taken there is generally more tension on the bowel. The advantage over the Alexander is, that the latter has only the round ligament to depend upon, while this has all the tissues that go to make up the broad ligament, and all covered by peritoneum.

#### THE SIMULTANEOUS OCCURRENCE OF CARCINOMA AND FIBROIDS IN THE UTERUS.

Geuer [2] has collected 46 cases of this character from the literature, and classes them as follows: (1) primary carcinomatous degeneration of the myoma; (2) carcinoma and myoma of the body of the uterus; (3) myoma of the uterus, and carcinoma of the cervix or portio. There were 10 cases of the first class, but only four of them can be considered as trustworthy examples of true primary cancer. Of the second class there were 23 cases, of which in only two was the disease secondary in the myoma. In these cases the myoma was submucous.

There were 13 examples of the last group, of which Geuer says that there is little evidence that the myoma is the direct cause of the cancer of the cervix, but like other morbid conditions predisposes to malignant disease. Suspicion of beginning malignant degeneration is aroused when, especially at the menopause, in cases of long-standing myoma, hemorrhage, foul dis-

[1] Lancet, September 22, 1894.
[2] Cent. für Gyn., No. 14, 1894.

charge and loss of strength occur. Diagnosis is confirmed by the microscopical examination of scrapings from the uterus. Vaginal hysterectomy is the most satisfactory operation, as with abdominal hysterectomy secondary infection of the peritoneum is likely to result. This must be especially guarded against by thorough curetting of the vaginal portion, packing with iodoform gauze, and sewing together the lips of the cervix.

PATHOLOGY OF THE UTERINE MUCOSA.

Van Tussenbroek and Mendes de Leon [3] have given a very thorough anatomical and clinical study of this subject, of which the following is an abstract: The diseases of the uterine mucous membrane which by the majority of gynecologists are included under the name of inflammation must be separated into endometritis and pseudo-endometritis.

The true endometritis is histologically characterized by the appearance of leucocytes, which, at first distributed among the normal structures, finally displace these and cause them to disappear. The final result is a small cell fibrillary connective-tissue without glands or surface epithelium. Pseudo-endometritis is histologically characterized by changes in the vessels, which result partly in hyperplasia of the stroma and glands, and partly in atrophy with destruction of the tissues. Both forms of endometritis are, as a rule, confined to limited portions, the microscopical field shows alternately diseased and healthy portions.

True endometritis is characterized clinically, at least at certain stages, by a purulent discharge. Pseudo-endometritis is clinically evidenced by hemorrhages, menorrhagia or metrorrhagia. Sometimes also by profuse mucous discharge. In addition both can be the indirect cause of symptoms referable to neighboring or distant organs.

True endometritis of the corpus uteri (corpus catarrh) is much more common than is usually supposed. It occurs more frequently than catarrh of the cervix. Catarrh limited to the cervix is comparatively rare.

The differential diagnosis between a catarrh limited to the cervix, and a combination of corporeal and cervical catarrh can only be definitely made by the microscopical examination. On clinical grounds one can arrive at a probable diagnosis, if one considers —

(1) That a thin, purulent discharge points to catarrh of the corporeal endometrium;

(2) That with multiparæ cervical catarrhs occur seldom;

(3) That when reflex symptoms are prominent, they point to a pathological condition of the corpus mucosa;

(4) That cervical catarrhs are rare in virgins, and the combination of cervical and corporeal catarrh still more rare.

True endometritis occurs in virgins more rarely than pseudo endometritis; occasionally it is dependent upon previous infectious diseases. The two forms may occur together, in which case they usually follow subinvolution or abortion, where at the same time disturbances of the circulation and infection take place.

Treatment depends upon the intensity of the symptoms. Serious cases of endometritis, as well as of pseudo-endometritis, require removal of the diseased mucous membrane by curetting. Energetic after-treatment is of the greatest importance; where this is neglected, a speedy relapse is likely to occur. It is seldom that treatment confined to the cervix is successful.

[3] Archiv. für Gyn., Band xlvii, 1894.

TREATMENT OF CHRONIC ADHESIVE PELVIC-PERITONITIS.

Under the name "Pelveoperitonitis chronica adhesiva," Martin [4] describes this common affection of the female sexual organs, with special reference to the appropriate treatment. He refers to the opportunity of learning the appearances and results of this form of inflammation from the abdominal operations which are now so common. Less, however, is known about the cause. As regards treatment, Martin says, "No one will attempt more radical measures until medical resources have been tried in vain." As regards massage, the first enthusiasm for this form of treatment has cooled somewhat. Some few cases benefit, more either remain unchanged or are made worse. Where these means fail, there is no doubt that operative measures are indicated. The prognosis of the operative method of treating chronic pelvic peritonitis depends not so much upon the cause of the infection, as upon the character of the lesions found. It will naturally differ widely in cases where the peritonitis is complicated with inflammatory processes or new growths in the pelvic organs, ovaries, tubes and uterus, and where pus-cavities exist in the parametric tissues, from what it is where the condition is merely a more or less complete matting together of the pelvic contents. This last result Martin has found following both septic and gonorrheal infection, and probably also simple catarrhal conditions. The consequent displacement of the uterus is by no means always the most important factor. The obliteration of the tubes, the dislocation and pathological fixation of the often healthy ovaries, the implication of bowels and bladder, and the stretching of the thickened pelvic peritoneum, are usually of more moment than the retro-displaced uterus.

Both ovaries and uterus are often healthy; rational treatment would therefore consist in some method of curing the pelvic peritonitis with preservation of these organs. Both castration and, recently, hysterectomy have been urged and practised for this condition, Martin has found that the separation of the adhesions by operation fills this indication. He has learned, however, by experience that simple separation is a doubtful procedure; hence for five years he has in addition to separating the adhesions stretched the pelvic peritoneum as much as possible with incision of the cicatricial bands if necessary and in addition performed ventro-fixation.

In order to stretch the peritoneum after freeing the organs, Martin uses stroking movements with the fingers in the depth of the pelvis, from behind forwards, employing considerable force. Five times he has cut subcutaneously the fibres of the sacro-uterine ligaments. He then convinces himself of the patency of the tubes and the (macroscopic) healthy condition of the ovaries, and brings them into their proper position. The uterus is then fastened with three silk sutures into the lowest angle of the abdominal wound.

Where the peritoneum is torn and ragged, Martin covers the surfaces with sterilized olive oil which he believes hinders their growing together again.

[4] Zeit. für Geb. und Gyn., Band xxx, 1894.

Of 33 patients treated by this method, 26 had been operated on more than six months previously. From 21 he had late information, and of these 19 were free from pain, and able to work, while in two the improvement had been only temporary. The adhesions had so stretched that the uterus was quite movable, in good position, tubes and ovaries normal to the feel, and the parametrium not sensitive.

### THE OPERATIVE CURE OF SIMPLE AND ADHERENT RETROFLEXION OF THE UTERUS BY THE VAGINAL METHOD.

Dührssen[6] in a long article on this subject gives first the detailed history of 207 operations, and then describes his mode of operation and its results. The principle of the operation is the attaching of the fundus uteri to the anterior cul-de-sac. This can be done in three ways: (1) by fixing the fundus through the unopened vesico-uterine pouch; (2) by opening the peritoneal fold and drawing the fundus down to the vaginal wound; (3) by opening the fold and drawing the body of the uterus down to the vulva. A simple incision in the anterior cul-de-sac suffices in all these methods. The bladder is pushed away, and the highest part of the uterus which can be reached drawn down with a hook or by a strong ligature. A second and a third, each higher than the last, are then inserted, and drawn upon until the fundus appears, when it is sewn into the vaginal wound. The details of the operation should be read in the original. Where there are adhesions they can be reached and separated after the peritoneum is opened as by the third method.

Dührssen says: "All three methods of operation lead to a permanent cure; the first and second with a movable uterus, the third with an adherent one. The term cure does not merely mean that the position of the uterus is normal, but the patient is well; that she is freed from all the symptoms caused by the retroflexion, without in any way compromising any function of the uterus; menstruation becomes regular, and a previous sterility the result of the displacement or its complication is often cured. Pregnancy goes on without trouble, and no difficulty occurs at delivery which can be connected with the operation. The improved position of the uterus persists even after pregnancy and child-birth if caution is exercised."

### THE INFLUENCE OF SEA-BATHS AND PROLONGED IMMERSION ON MENSTRUATION.

Houzel[6] in this article gives some very interesting facts in regard to the effect of sea-bathing upon the generative system of the woman, founded upon the experience of the fisherwomen of Boulogne and vicinity. He refers to the fact that it is generally considered that a woman during menstruation is in a state bordering on sickness, and should observe a strict hygiene, and baths are interdicted. While this may be true of the city women and is a result of our civilization, it is not true of healthy women living a more natural life. For these menstruation is a physiological act, which accommodates itself to the fatigues and the transitions which the necessities of their life impose upon them. Sea-baths far from interfering with menstruation, favor it, prolong the sexual life, and increase their fecundity. The author is of the opinion that if even delicate, neurasthenic women should accustom themselves to take sea-baths regularly, even during menstruation, they would suffer less from amenorrhea and dysmenorrhea, and this function would become regular with great advantage to their general health.

In support of these opinions he calls attention to the habits of the fisherwomen, who are accustomed to remain in the water for hours at a time, thinly clad, submerged to the waist and sometimes to the arm-pits, bare legs and feet, making long marches with heavy baskets on their backs, their clothes dripping wet, in winter and in summer, menstruating or not; and all this without apparently suffering any inconvenience.

He has recorded his observations of 123 of these women as regards puberty, the menopause, their fecundity, and the results on menstruation. All these women were accustomed to go into the water every day, during their catamenia, when pregnant and when nursing. As regards menstruation, not one testified to the least inconvenience from their immersion in the water. Some noticed that their sickness came on without pain when in the water, and that they suffered if they did not pursue their ordinary habits; others flowed more freely; and the testimony was unanimous as to the good effects of the salt water. Nor did this apply alone to those who from childhood were accustomed to the life and began to menstruate under these conditions; even those who began long after puberty felt no ill effects.

The average age of puberty for the 123 women was thirteen years and ten months; and for those who had arrived at the menopause the average age was forty-nine years and a half, giving a length of sexual life of thirty-five or thirty-six years, which is several more than the average. Fecundity, too, is favorably affected. Taking the 63 married women of whom the record is complete, there were 497 children, giving an average of 7.8 children to a household.

Houzel therefore concludes that women can with advantage continue sea-bathing during their periods, provided they have become acclimated to the sea, and have no trouble with the appendages; that they tend to prolong the sexual life, and increase the fecundity in a remarkable manner.

His theory of the action of sea-baths is as follows: At the moment of immersion in the water, the whole economy receives a profound shock; often even somewhat painful. Under the influence of the sudden lowering of the temperature, and of the density of the water, which acts upon the skin by its weight and its salts, almost all the blood of the periphery is thrown back towards the centres; the heart seems to stop; then the pulse becomes small, hard, rapid; hurried respiratory movements succeed a rapid inspiration; the skin grows pale. This lasts a short while, when the equilibrium re-establishes itself, the economy reacts, and accustoms itself to its new environment.

The vessels of the splanchnic organs, sharply dilated by the considerable afflux of blood, react by virtue of their elasticity, to the exaggerated contraction of the vaso-motors of the peripheral vessels, succeeds a sort of temporary paralysis, which dilates their calibre, and the blood flows to the skin, which becomes red and suffused. This kind of gymnastics of the skin and the deep vessels, renders the circulation active in those organs where there is tendency to congestion. The uterus joins with the other organs in this;

[6] Archiv. für Gyn., Band xlvii, 1894.
[6] Annales de Gyn., 1894.

its circulation becomes more free and active, its nutrition more perfect; it gains in vitality, and is able to perform its functions more healthy and easily.

## Reports of Societies.

### CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

J. L. AMES, M.D., SECRETARY.

REGULAR Meeting, Wednesday, February 20, 1895, DR. G. M. GARLAND in the chair.

DR. J. H. MCCOLLOM read a paper entitled

#### OBSERVATIONS ON DIPHTHERIA.[1]

DR. MASON: Dr. McCollom's paper is certainly most interesting, both from the bacteriological and clinical standpoints. The value of the bacteriological test must be regarded as fully established, especially in relation to the mild cases of nasal and laryngeal diphtheria occurring in schools and elsewhere, which otherwise would pass undetected. The more severe types are easily recognized in probably four-fifths of the cases by the clinical appearances. There are undoubtedly severe sore throats, membranous, which have every appearance of diphtheria but which turn out not to be so after bacteriological examination. But there are certain annoyances and inconveniences which occur from the rigid application of the bacteriological test. Dr. McCollom spoke of the pseudo-bacillus and the fact that certain throats, either without or after exposure to diphtheria, may present the Klebs-Löffler bacillus. Where a member of a family is found to carry about the Klebs-Löffler bacilli or the pseudo-bacilli in the throat, with no manifestation whatever of diphtheria, it becomes a serious question as to whether the house should be placarded, the family isolated, the expense of a nurse undergone, etc. It is a practical matter that has arisen more than once, and for myself I do not feel justified as yet, in the absence of symptoms, in putting a family to that expense and trouble, because the only means of determining whether these bacilli are virulent or not must be by the inoculation of animals. That is manifestly impossible in many cases, and in the absence of membrane in the throat, in the absence of symptoms of all kinds it seems to me that we must be guided by the clinical manifestations. The question arises not infrequently in the hospital as to whether a patient with the Klebs-Löffler bacilli who has no membrane shall be placed at once in the diphtheria ward. We have thus far done so. Patients who are not in the least sick, or very slightly so, have been placed in the diphtheria ward with no ill result to themselves thus far; but it is different in families, and it is a matter of serious importance, in which I should like to ask Dr. McCollom's opinion, as to whether it is the duty of physicians under all circumstances to report cases of such mild nature when the Klebs-Löffler bacilli are found, or bacilli having the appearance of the Klebs-Löffler. This may not seem to be a question which would be of frequent practical importance, but I have known of its being brought up.

The value of the use of antitoxin is now well established. At the City Hospital we have had one hundred or more cases treated in that manner, and here again we cannot wait for the culture-test. The patient brought in on the third or fourth day of diphtheria becomes more septic every hour, and the delay of twelve or twenty-four hours may mean death to the individual; therefore it is important that the antitoxin should be injected at the earliest possible moment, the results on the first, second and third days being vastly better than when this substance is used at a later period. As Dr. McCollom said, even in the cases which result fatally after late injection, there is a considerable degree of benefit apparently derived from this source; the children become more comfortable; they may even sit up and seem to be improving, but after two or three days, perhaps, they relapse and die from septic influences or heart failure. As to the disagreeable results of antitoxin, the only one which has seemed to me of any great consequence as a cause of suffering to the patient has been the pain in the joints, like rheumatoid arthritis, which sometimes lasts two, three or four weeks. The urticarial eruption is of little importance.

DR. MORSE: As to the liability of error in a single bacteriological examination of the throat, it seems to me that where the diphtheria bacilli are found it is positive evidence; in a case, however, which is clinically diphtheria, and a single bacteriological examination does not show the diphtheria bacilli, it seems to me that we are not justified on the strength of that one examination in saying that the case is not true diphtheria. For a number of months I followed up every case which came into the diphtheria ward of the City Hospital which gave a negative report for diphtheria bacilli on the first examination, taking swabs every day from the nose and throat until the case left the hospital. In a very large proportion of these cases the second or third examination would reveal the presence of the Klebs-Löffler bacillus, and in some cases the Klebs-Löffler bacillus was not found until the membrane had disappeared. Of course, it is possible that the cases were infected after they entered the hospital, but it does not seem to me that that is the explanation of the majority. So if I receive a negative report on a case of clinical diphtheria, I should not be satisfied with that, but should treat the case as diphtheria, and should want one or two more examinations made before I was satisfied. I am glad Dr. McCollom and Dr. Mason have emphasized the importance of the examination of all sore throats; it seems to me that here is the great use of the bacteriological examination. It is the sore throat which does not look like diphtheria which is liable to confuse. As to the negative examinations in convalescence, it seems to me that one negative report during the convalescence is entirely insufficient, that you should have at least two successive reports. It very frequently happens that one report will be negative, the next report positive, the next day negative and the next day positive, and then perhaps two negative reports. It does not seem safe to fumigate the house until you have at least two negative reports.

As to the infectiousness of streptococcus throats, the Board of Health of New York investigated that last summer, and found it practically *nil*, very rarely being able to trace any infection from one case to another.

When the Klebs-Löffler bacillus is found in the healthy throat, the possessor certainly has not diph-

[1] See page 449 of the Journal.

theria, but I cannot see why he is not as dangerous to the community as is a convalescent case. It is the same bacillus in the same place. The fact that such bacilli may not be fatal to guinea-pigs, is no argument, as it is extremely probable that the Klebs-Löffler bacillus which in one throat is not pathogenic may be virulent when put on a different soil.

It seems to me that in every case of diphtheria antitoxin should be used, whether early or late; and, as Dr. Mason says, we should not wait for the bacteriological test. It should be used at once. It does not seem to me we are going to do any harm, and we do gain twenty-four hours. I see no reason, moreover, why, if you use antitoxin, you should not use other means as well, and not limit yourself to antitoxin alone.

Dr. Withington: Possibly the most useful contribution which I can make to this subject is to speak of the results as I saw them in my own service at the City Hospital during the months of December and January. The cases in which the remedy was used were 91 in number, but 11 of those cases were rejected from the count from failure of the bacteriologist to report the specific germs of the disease in those cases, therefore leaving 80 cases in which the remedy was used. Of those 80 cases, 13 died; and of those 13, two died from scarlet fever which they contracted in the wards of the hospital, and both of them died with clear throats so far as diphtheria was concerned. Therefore these two are not properly to be included among the number of deaths in cases of antitoxin treatment; but as they died after antitoxin injection, I have left them in the list. That gives a mortality of 16 per cent. During the same period of time there were 40 cases of diphtheria in the wards, as shown by bacteriological tests, which were not treated by antitoxin; and they were not treated for various reasons, partly because of the lack of material, partly because of the patients entering moribund in four or five cases; in a few cases because the patients entered very late in the disease, beyond the fifth day from the onset of the disease. As the material was scarce, it seemed proper to withhold it where it did not promise to give good results; but the majority of those 40 cases were those in which the remedy was withheld because the cases were mild. Therefore, the group of 40 cases was a group of selected mild cases, as a whole, and yet the number of deaths among those was 12, or 30 per cent. The group of antitoxin cases, as a whole, were a severer type than those not treated in that way, and the mortality was 16 per cent. Adding all together and including the entire series of cases of diphtheria which appeared in those six weeks, of which two-thirds were treated with antitoxin and one-third without, we had a mortality of a little less than 21 per cent. As Dr. McCollom said, the average hospital mortality has been about 50 per cent. in the City Hospital for a number of years. Assuming that it is from 40 per cent. to 50 per cent., as it is in most large hospitals, we have here a very manifest and striking reduction in the mortality under this method of treatment. In two cases, there were autopsies, and the infection of the system was shown to a marked and surprising degree. Contrary to what we used to be taught as to the migration of the Klebs-Löffler bacilli from the site of the original infection, they were found in the lungs; both patients had broncho-pneumonia, and in the patches of broncho-pneumonia were found streptococci and the Klebs-Löffler bacillus. The same diphtheria bacillus was found in other organs of the body. One of the patients had streptococci in the blood of the left ventricle, and the general toxic infection was very great in both cases. In six of the fatal cases death occurred within forty-eight hours of the first injection, and in four within twenty-four hours. These were cases in which the remedy was used after it was more plentiful than at first and where it was deemed wise to give it in the cases practically hopeless.

Therefore, the numerical results are certainly very promising. The results apart from the question of figures seemed to me very striking. The gentlemen who went into the wards at that time, I think, will admit that the wards bore a very different appearance when that treatment was in force from what they have generally done in years past. Usually in going into those wards one would see a lot of steam being used for the purpose of relieving stenosis of the larynx, and the amount of steam was very much less in patients put early under this treatment. In the second place, the general septic appearance of children with advanced disease, lying in a stupid, comatose way, had very generally given way to a very much brighter aspect of the children, many of them sitting up in their cribs, sometimes sitting up within twenty-four hours of the time of receiving an injection; so that the type of the disease was alleviated as well as the death-rate reduced.

I am very glad that Dr. Mason said a word in favor of still allowing the clinician a little part in the diagnosis of diphtheria. We have been gradually rather crowded to the wall by our friends the bacteriologists, so that we did not dare to express any opinion as to the existence of diphtheria in any case whatever; but there are cases of diphtheria where I think we have a right to an opinion, even though the bacteriologist fails to find the microbe on the first or second examination. Two of the cases were not injected because of a negative report on the first examination. On the second examination, however, diphtheria bacilli were found, but time had been lost and one of these patients died. I have reason to believe if the injection had been made earlier the case might have been saved. Another patient I remember came in with all the symptoms of profound sepsis of diphtheria of the most aggravated type, and lived three days. The first day the report was returned negative; second day negative; the third day, just before he died, the report was, "few Klebs-Löffler bacilli." Another patient was given an injection on the strength of the general clinical picture of diphtheria, membrane being abundant in the throat, and there were two negative reports on the throat. The child was growing sicker, and had profuse nasal discharge. It was thought diphtheria might be present in the nose. Two swabs were taken from the nose, both with negative reports. Finally, for the first time, twelve days after the child entered, we got a positive report on a swab from the nose. In accordance with the ordinary methods of interpretation of reports of bacteriologists, that child would have been assumed to be free from diphtheria all that time; but I am practically sure the child had diphtheria all that time, and the swabs failed to show it. The same thing is important in judging of membranous laryngitis. A case was in the hospital with a strip of membrane on the back of the pharynx, swab taken with negative result; the child choked up, was

intubed, died, and diphtheria bacilli were found post-mortem in the trachea and larynx. The situation of the disease was such that it was not reached by the swab. All these things are evidence that the disease may be overlooked by the most careful bacteriologist, and that the clinical evidence is not to be disregarded.

As to the other horn of the dilemma, what is to be done in cases of the presence of the Klebs-Löffler bacillus without disease, a very serious question comes up. A patient was admitted the other day to the hospital whom I saw first in ignorance of anything about him, and who showed nothing in his nose or throat. I asked him what he was there for, and he said he had the option of being there or in jail. The reason was that he had had diphtheria bacilli in the throat. I suppose he had had membrane in his throat. We had a swab taken, and the report was that there were no diphtheria bacilli present. Inasmuch, as at the same time I had the Klebs-Löffler bacilli in my own throat, as shown by two consecutive daily reports I felt a little guilty that I should be keeping this man there while I myself under the same construction ought either to be in the hospital or in jail. This man had been sent in by the health authorities because of the existence of this microbe in his throat, and we kept him twenty-four hours and discharged him. When the question came as to what diagnosis to put in the record, as he had no membrane and no bacilli, there was no resource but to enter him as having "no disease." I think, while we owe to the bacteriologist an enormous debt for the settlement of doubtful cases of diphtheria, we must still feel that as clinicians we have the right to an opinion, which we like to have confirmed by the bacteriologists.

Dr. V. Y. Bowditch: I have very little to add to what I have already said at the Medical Improvement Society. I have been on duty two weeks in the infectious wards of the City Hospital, and my experience thus far has certainly been in favor of antitoxin. Twenty-six new cases have entered since I came on duty, of which four have died — all four being very severe cases when they came in, two moribund, and one had intubation three times and tracheotomy. All the others with the exception of two are doing very well. Those two I reported on Monday as still doubtful, are better to-day. One is a child who is decidedly septic, fighting his food and treatment and everything, but he developed last night a scarlet-fever rash, and was transferred to the scarlet-fever ward. In the other the amount of membrane is decidedly less this morning.

One point in reference to the immunizing dose is rather interesting. Two nurses who have come down with diphtheria, both having membrane and the Klebs-Löffler bacillus, received immunizing doses three weeks before they were taken. In one case I found that the dose was very small; and in the other I could not find out the exact amount given. Both proved to be very light cases.

Dr. Durgin: I have been much interested in this paper and the discussion. It seems to me extremely important that the clinician and the bacteriologist should agree as to whether this or that patient is dangerous to the public health, and that is the part of this question in which I am most interested. I am frequently asked whether or not some given case should be reported and treated as one dangerous to the public health. For instance, a person who is apparently well, but from some slight irritation seen in the throat a culture is taken and found to contain the Klebs-Löffler bacillus. The question at once arises, What shall be done with this person? In the past we have been accustomed to look upon such person as not dangerous to the public health because we had no knowledge or reason to suspect that the diphtheria bacilli were present. This has been the position of the medical profession up to a recent date. Since, however, the bacteriologist has found that the Klebs-Löffler bacilli are evidence that the patient has diphtheria, and that through this bacilli the diphtheritic patient can spread the disease, we have felt sure that that was the person to put into isolation. We all know that by some unchecked influence diphtheria has continued endemic for years in our city, and we have wondered, in many instances, how the disease could have been contracted. The suspicions which some of us felt that the unrecognized cases were spreading diphtheria, has been fully borne out by the bacteriological work which has been reported to-night. I am constantly in trouble over the cases of diphtheria that continue so long to show the Klebs-Loffler bacilli after the patient has, apparently, recovered. I am importuned every day by the householder, parents and doctors to disinfect and release the patient from isolation. I do not know what to do except to act upon the belief that the patient is a source of danger until the bacilli have disappeared. If it can be shown that the Klebs-Löffler bacilli found in the throat, without coincident clinical appearances, are harmless, then I am ready to pull down the cards, disinfect, and release the patient when the ordinary clinical evidences of diphtheria are gone; but it seems to me that I am not warranted in doing this while the prevailing belief of the medical profession is against it. I was very much interested in what Dr. Withington said about the person who was in fear of the jail. I think I may have seen that patient, a boy who could not be controlled by his mother at home. He had had, according to bacteriological tests, diphtheria; lived at the North End, and was brought into the health office. I looked in his throat, found a little irritation, but no membrane. Professor Ernst is my authority for calling it diphtheria. I tried to have that boy isolated at home, not in jail, but this could not be secured. I then said, "You must go to the hospital," and I secured his admission there. I presume this is the same case; and, if so, two days must have elapsed after the examination by Professor Ernst before the hospital test was made, which gave time for the bacilli to disappear.

Dr. Mason: It seems to be the case that there is clinical diphtheria and also laboratory diphtheria. They usually coincide; sometimes they do not, and then the responsibility must rest either upon the physician in charge, or, if he can shift it on to the health board, it will rest there. The practical difficulty is great. If a man with large interests under his care, who feels perfectly well, accidentally discovers that he has these organisms in his throat, I think we are not in a position to say that the organisms may not be benign; at least, the only way of proving it is by experimentation on animals, and that is practically rarely done. So I do not see how the Board of Health can take the responsibility in such a case of cutting a man off from his business, which may be important, and

subjecting themselves perhaps to great complaint from the individual.

Dr. Withington, being asked if the men on service at the hospital had their mouths constantly watched every day, said he did not think they did. As a matter of curiosity, occasionally it was done, and swabs taken from the mouths of house-officers and from the nurses and articles of wearing apparel; and diphtheria bacilli had been found present in all these situations, but no regular system of watching the throats of the attendants was practised so far as he knew. In his own case he simply happened to find them. He had a trifling indisposition lasting about a day and a half, and after he got well thought he would see what sort of cocci a man had in his throat when he had that kind of throat. A test was made and the bacilli found.

Dr. Withington then read a note bearing on the question from a paper by Dr. Welch of Philadelphia.[2]

After stating that diphtheria bacilli may be present and multiply in the throat without symptoms or lesions, he further adds, that of 330 persons who gave no history of direct contact with diphtheria, eight were found to have virulent diphtheria bacilli in their throats. Of these, only two subsequently developed diphtheria. Bacilli, indistinguishable morphologically or in cultures from the diphtheria bacilli (including the formation of acid in forty-eight hours in bouillon), but entirely devoid of virulence, were found in 24 others of these 330 persons, in most instances in large numbers. Further the "pseudo-diphtheria" bacillus was found in 27 persons. This latter, while morphologically identical with the true diphtheria bacillus, differs from it in respect both of virulence and of mode of growth in certain cultures. So that it appears from this authority, that of 330 persons 8+24 +27, or 54, showed bacilli which were morphologically those of diphtheria; and 32 showed an organism which would have required the experimental test on animals to show whether or not it possessed virulence.

Dr. Durgin: I would like to ask if Dr. Withington or Dr. Mason has seen any case where the Klebs-Löffler bacillus was found in the throat which was in a perfectly healthy state so far as could be seen.

Dr. Mason: The throats have been slightly reddened, no more than many throats are from the use of tobacco or other irritants. I think that the kind of case I referred to may be said to present no positive throat symptoms, and such patients are not infrequently, as I have observed them at the hospital and occasionally outside, in good general health, without fever, and with no symptoms of sickness. It becomes a serious matter to shut them up, placard their houses and subject them to loss.

Dr. Durgin: In a few instances where this question has been asked over telephone, I have advised the physicians to keep the patient isolated for a few days under observation, use gargles freely, take cultures, and if the case cleared up readily not to report it; but I am not certain that I am right in doing so.

Dr. Mason: I should think that was a very judicious way of treating it. The public make no distinction between severe and mild cases, and where houses are placarded they might as well have plague or small-pox within, so great is the prevailing fear of contagion.

[2] Archives of Pediatrics, February, 1895, p. 135.

Dr. McCollom: In regard to what Dr. Mason said about not finding the diphtheria bacillus in cases of clinical diphtheria, it seems to me that this is always due to some error in technique in making the cultures. It sometimes happens that when there is a membrane the first culture may be negative, but the second culture almost invariably will be found to contain the characteristic bacilli. In connection with this there is one important practical point which does not seem to be fully appreciated by the profession. This point is the fact that on the surface of the membrane the bacilli frequently die, and therefore if the culture is taken directly from the surface of the membrane in the majority of cases a negative result will be obtained. If, however, on the other hand, the wire is passed through the membrane or along its edges a positive result is almost invariably reached. It is also advisable to take a second culture from the secretions of the mouth without reference to the site of the membrane. The advantage of this mode of procedure has been satisfactorily proved in a great number of cases examined at the laboratory the past year. It has been found that while the culture from the surface of the membrane did not contain bacilli, that from the secretions of the mouth, did. All false membranes in the throat are not necessarily diphtheritic, and in many instances it is impossible to decide upon the nature of this membrane simply by its appearance. This is notably the case in the membrane appearing in the throat during the course of the scarlet fever. Many cases of scarlet fever in which a membrane appears, without a bacteriological examination would be considered to be cases of scarlet fever associated with diphtheria. As a matter of fact, as has been proved by the examination of a large number of cases, the association of these two diseases is not so frequent as has been generally supposed. In a well-marked case of clinical diphtheria it does not seem to me that it is well to wait for the result of the culture before administering antitoxin; but certainly, if we are to arrive at any definite conclusions regarding the value of this agent, a culture should be taken at the time the antitoxin is administered. If the case does well and the culture shows the presence of the bacilli of diphtheria, we certainly have presumptive proof that the remedy is of use. If, on the other hand, the case does badly and the culture shows diphtheria bacilli and streptococci, or streptococci alone, we have no proof that antitoxin is not of advantage in cases of pure diphtheria. It has been shown in so many instances that a streptococcus infection is not affected in any way by antitoxin, that it is important that this fact should be fully appreciated.

In regard to the presence of the bacillus of diphtheria in persons comparatively well, this is so rare that it does not seem to have any important bearing on the subject. It does seem to me, however, that a person with diphtheria bacilli in the secretions of the mouth is a source of danger to the community, and that he is liable to communicate the disease, of a most virulent type, to other susceptible persons.

While it may be a hardship on the individual to isolate him for a few days, yet the well-being of the community demands it. A person with diphtheria bacilli in his throat is in a similar condition, so far as the community is concerned, to a person with a very slight eruption of small-pox. I think very few people would care to have a person with even four or five

small-pox pustules on his face at large in the community. In the case of adults, with diphtheria bacilli in their mouths, the danger of communicating the disease is perhaps not so great as in the case of children; for instance, a child with a mild attack of diphtheria, so mild that it could not be detected without a bacteriological examination goes to school, kisses the other children, uses the same handkerchief, and may in this way — nay, has — communicated diphtheria of the most virulent type to others. If anything is ever to be done in stamping out diphtheria the disease must be attacked in this direction. The importance of recognizing and isolating mild cases of disease is perhaps shown in no better way than by the history of small-pox in Boston for forty years. For the twenty years from 1852 to 1871 when the mild cases were not carefully isolated, the number of deaths was 1,197, with an average population of 187,969; for the twenty years from 1875 to 1894 when every mild case was isolated, the number of deaths was only 56, with an average population of 405,081.

Nobody pretends to say that mistakes may not occur in bacteriological examinations, but the chances of error are very slight.

In regard to the list read by Dr. Withington, it does not seem to me that it is conclusive; other observers have examined a much larger number of throats of perfectly well people and did not find the bacillus of diphtheria, although a bacillus somewhat resembling that of diphtheria was found. In regard to what Dr. Morse said in reference to two or three negative cultures, I think it is absolutely imperative that there should be, at least, two negative cultures from the nose and two from the mouth in a case of diphtheria before a person can be considered well of the disease.

## NEW YORK COUNTY MEDICAL ASSOCIATION.

At a meeting of the New York County Medical Association held April 15, 1895, a paper by Dr. Thomas R. Savage was read on

### SYMPHYSEOTOMY, WITH REPORT OF A SUCCESSFUL CASE.

The patient upon whom symphyseotomy was performed was a young woman twenty-four years of age, pregnant for the third time. In her first pregnancy the birth was premature, at the fifth month. In her second she went to full term, and craniotomy had to be resorted to. When Dr. Savage was first consulted she had just entered the ninth month of utero-gestation. The child's head presented in the left occipito-anterior position. The measurements taken of the pelvis showed it to be of a decidedly funnel shape, normal in its dimensions at the superior strait, but contracted at the pelvic outlet to a transverse diameter of two and a half inches.

Three weeks before the date of the patient's expected confinement complete dilatation of the os uteri was secured, and she was placed under chloroform. The usual incision for the open method of operating was made, and the pubic joint was found to lie almost three-quarters of an inch from the median line. Dr. Savage expressed his belief that the articulation is commonly found in this situation and quoted Wehlé's statistics of 60 cadavers. In only eight cases was the articulation in the middle; in 40 cases it was to the left, and in 12 cases to the right. The strong subpubic ligament was divided, but no separation occurred at the joint. It was then found that the bones were retained in position by the post-pubic fascia; and when this was severed the joint surfaces sprang apart to the extent of one and three-quarter inches. The wound was packed with gauze, no hemorrhage having occurred. The patient's thighs were then placed upon the abdomen (the knees being still held together), and the child easily extracted with the aid of the forceps.

During its passage the separation of the symphysis did not exceed two and a half inches. It was estimated that the ischiatic diameter was increased from one to one and a half inches; and in extracting no compression was necessary. Careful experiments, said Dr. Savage, had demonstrated that during pregnancy the ends of the pubic bones could be separated three inches, or, if necessary, three and a half inches, without endangering the integrity of the sacro-iliac joint. He concluded, therefore, that in his case the same sized fetus could safely have been brought through a considerably narrower pelvic outlet.

The vagina and bladder projected into the wound after the removal of the gauze, and considerable difficulty was experienced in preventing them from being pinched when the bones were brought together. Silkworm-gut sutures were used to close the wound, and broad bands of rubber adhesive plaster to support the pelvis. Not more than two drachms of blood were lost from the wound during the operation.

Primary union took place, but on account of extensive serous infiltration into the abdominal wall, the upper end of the cicatrix was opened for drainage, and a sinus existed for about four weeks. At the end of four weeks the patient was allowed to get out of bed, and she experienced no difficulty in walking at once, the union at the symphysis being quite firm. At the present time (a little more than three months after the operation) she is able to attend to her household duties as usual. There is slight mobility between the pubic bones, but not enough to cause her any inconvenience.

The child was asphyxiated when born, and it required fully half an hour to satisfactorily establish respiration. This, he said, was quite a common complication of symphyseotomy, the number of cases in which it had been reported being surprisingly large.

Dr. William T. Lusk said that he heartily congratulated Dr. Savage on the good results attained in his case, and that he would like to call attention to the good work in connection with symphyseotomy that has been done of late in Paris, especially by Pinard. In 48 cases at the Hôpital de Bandelecque there were four deaths; but out of 44 cases in which the operation was performed under favorable conditions, there was but a single death. These 44 patients were women in good condition who were in the hospital before confinement. Out of four cases, however, in which the patients were sent into the hospital after being long in labor and already suffering from septic infection, no less than three died.

One formidable source of danger in symphyseotomy had always been loss of blood. Dr. Savage had been very fortunate in this respect in his case; but in a second case he might have the most alarming hemorrhage. Another reason why symphyseotomy had been fatal was too much delay in operating. If we could only be sure of our measurements of the pelvis and

of the child's head, there was no good reason why it should not be done early in labor. If these measurements could be accurately ascertained we could tell at once whether the operation was called for or not. At present, however, our measurements were very imperfectly made, and if we found that the pelvis was not extremely contracted we were apt to go on trying to get the head through. In this way valuable time was lost, and both mother and child were exposed to imminent risk. He was happy to state, however, that Farabourg had devised two instruments which, when perfected, it was hoped would enable us to make the pelvic and cephalic measurements with considerable precision.

If we wished to avoid hemorrhage, we should follow the directions laid down by Pinard. With the index finger and thumb the clitoris should be seized, and the suspensary ligament of the latter put upon the stretch and divided with the knife. Through the opening thus made the vessels could be pushed back with the finger placed behind the symphysis. Dr. Lusk then exhibited a metallic guard which was used for retracting the vessels and holding them out of harm's way.

In regard to common position of the joint to the left of the median line, as stated by Dr. Savage, he thought the latter must be mistaken. In hundreds of dissections made in Paris the articulation was found in all in the median line. The reason why asphyxia of the child was so common after symphyseotomy he believed to be because in this country and in Germany no attempt was made by the operator to separate the ends of the pubic bones, which were left to be forced apart by the head of the fetus. It was no wonder, therefore, that asphyxia resulted from the great pressure thus caused. In Paris it was the practice to separate the bones at once by means of an instrument furnished with a graduated arc. The separation should be made precisely equal on both sides, for if one of the bones yielded and the other did not irretrievable injury might be done to the joint. In case one of the bones should not yield the process could be facilitated by abduction of the limb on that side. He thought that Dr. Savage was mistaken in claiming that a separation of three inches, or even three and a half inches, could be safely accomplished. In France and Italy the separation was carried to two and a half inches, but never more.

If, in delivering the child the forceps were applied, it was of the greatest importance to have the cervix fully dilated. As there was no anterior support, it required great care to avoid making a rent in the soft parts. After the birth of the child the strong fibrous tissues should be united by means of silk ligatures. In this way the most perfect union could be secured. At the Hôpital de Bandelocque all the patients could hop on one foot a month after the operation, this exercise being used as a test. In this country, however, there was almost always imperfect union of the symphysis, and it was highly desirable that the method of holding the parts together should be improved.

Dr. George T. Harrison thought we should be over-hasty in assigning a definite place to symphyseotomy. It was true that it came before us with many promises; but the accumulation of a large number of cases was requisite in order for us to decide positively upon the position which it should hold. One difficulty was that a considerable number of cases had been unsuccessfully operated on in which such an operation as symphyseotomy was not indicated. In one instance that he knew of, the patient had been a long time in labor and had a pulse of 150 and other signs of exhaustion. The question of whether the subcutaneous or open method of procedure should be adopted was one of interest. Dr. Grandin in his work objected to the open method on the ground that it subjected the patient to the greater danger of infection and of hemorrhage. But so far as the latter was concerned the method described by Dr. Lusk seemed to accomplish all that could be desired. At present Dr. Harrison was inclined to believe that the operation of symphyseotomy should, as a rule, be confined to maternities, for the reason that so few had the skill and experience required for its proper performance. In case the patient were to suffer from permanent disability from the lack of union in the joint the physician would be liable to a suit for malpractice.

Dr. C. A. von Ramdohr said in regard to the status of symphyseotomy that as at the present time it is impossible to make accurate measurements of the pelvis and of the fetal head, so that only the most skilful and experienced can make a fair estimate of these diameters, and as the procedure is accompanied with the danger of hemorrhage, injury to the bladder, etc., it should, as a rule, be performed only in maternities, as Dr. Harrison had remarked. It was also an operation for multiparæ, since in women who had never borne children, unless the pelvis was known to be greatly deformed, there was always a chance of delivery by simpler methods.

Dr. E. E. Tull said that there was clearly a selection between symphyseotomy and Cæsarean section. The mortality from symphyseotomy appeared to be steadily diminishing, and in Paris 39 successive cases had been reported without a death. Still, it was an operation which required a much more accurate diagnosis than Cæsarean section, and the latter, in selected cases, was only a little more fatal. In symphyseotomy there was always the possibility of non-union, of serious injury to the bladder, etc., and on the whole, it seemed to be an operation which has a very limited field.

Dr. Edward van den Hoff said that he could not understand just why we should be so carefully warned against hemorrhage in the performance of symphyseotomy. It was, of course, an operation which should not be attempted except by a competent surgeon well prepared for any emergency that might arise, but in the anatomy of the parts concerned there was nothing which could not with ordinary care be avoided. As to the position of the symphysis, he had very frequently observed that it was not just in the median line, and that it was most often met with a little to the left.

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Fifty Years in the Same Office.— D. Colvin, M.D., writes to the *Journal of the American Medical Association* from Clyde, N. Y., that he has been fifty-one years in practice, and has lived for fifty years in the same house. He has also just completed his fiftieth year of married life. His inquiry as to whether any other member of the Association can boast of an equal number of semi-centennial anniversaries of like character, will, we opine, be answered only in the negative.

THE BOSTON

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## A HISTORY OF THE PENNSYLVANIA HOSPITAL.

THE Pennsylvania Hospital, incorporated in 1751 and opened in 1752, was the first permanent, public provision made in this country for the care of persons "distemper'd in Mind and depriv'd of the irrational Faculties," or for the relief of sick and injured inhabitants. This fact alone would lend great interest to its history. But when there is added to that, the association with the foundation and development of this institution of many of Philadelphia's best citizens, and of many of the country's best physicians and surgeons, both in pre- and post-revolutionary days; and when still again we remember the contributions made by the former to the hospital and by the latter through the hospital to the advancement of medical science and medical practice — the interest in the history of such an institution is greatly enhanced to all students of sociology and of medicine. The very handsome volume[1] prepared by Drs. Thomas G. Morton and Frank Woodbury, the publication of which was authorized by the contributors at their annual meeting, May, 1893, and directed by the Board of Managers, does justice to the subject, and lays under obligation those to whom it is sent.

About ten years ago Dr. Morton discovered in an abandoned closet in an out-building of the hospital a large collection of letters, accounts and memoranda, which thirty years previously had been temporarily placed there during repairs to the library, and forgotten. That the valuable historical material therein contained might be rescued from further risk of loss and permanently preserved, it was determined to incorporate it in a publication; with the present result.

The idea of the hospital originated with Dr. Thomas Bond, who, however, found it necessary to secure the co-operation of Benjamin Franklin, the latter thus becoming almost the earliest and certainly one of the most efficient promoters of the undertaking. Franklin practised with the happiest result the provisional subscription method — a method which continues to work successfully under similar circumstances in our time. The Provincial Assembly, unwilling to appropriate £2,000, was finally induced to do so on condition that the inhabitants of Philadelphia subscribed a similar sum — a result regarded by the objectors as unlikely of realization. In a short time £2,750 was subscribed, and the Assembly made good its pledge. In regard to this consummation Franklin subsequently wrote: "A convenient and handsome building was soon erected, the institution has by constant experience been found useful, and flourishes to this day, and I do not remember any of my political manœuvres, the success of which at the time gave me more pleasure; or, wherein, after thinking of it, I more easily excused myself for having made some use of cunning." A legacy of debts due to and from Dr. Franklin, accruing prior to his prolonged absence from the country on government affairs, the draft of which appears in his will dated July 17, 1788, and showing signs of his wonted shrewd benevolence, did not turn out so well, for it was not thought safe by the Contributors after due consideration to accept it and thus expose themselves to uncertain loss as well as uncertain profit.

One of the objections entertained by members of the the Assembly to appropriating funds for the hospital was that the expense of paying physicians and surgeons would eat up the whole of any fund that could be reasonably expected to be raised. This apprehension was allayed by Drs. Lloyd Zachary, Thomas Bond and Phineas Bond "generously offering to attend the hospital gratis for three years!"

The hospital in its earlier days benefited by various miscellaneous sources of revenue. The Assembly at different times granted to the hospital a proportion of various fines and penalties, and on one occasion a handsome award of unclaimed prize money; it also granted to the hospital the fines imposed upon its own members. The Penn family were generous benefactors.

One of the most interesting episodes in the financial history of the hospital is associated with Benjamin West's painting of "Christ Healing the Sick in the Temple." In 1800 the managers wrote to Mr. West asking him for a contribution. In the following year Mr. West sent a favorable answer, and suggested the subject for the painting. In August, 1810, notice was received that the painting might soon be looked for. The exhibition of the picture in England, however, aroused a determined effort among its many admirers to retain it in that country. As a result it was purchased for £3,000 and retained in England as a commencement of a National Gallery. Mr. West immediately began making a copy, which he resolved should excel the original. This painting did not actually reach Philadelphia until October, 1817. It was placed on exhibition in the building erected for it by the hospital. The money received from the opening of the

[1] The History of the Pennsylvania Hospital, 1751–1895. Philadelphia: Times Printing House. 1895.

exhibition to its close in 1843 amounted to something more than $25,000 and netted the hospital as much as was paid in England for the original. This painting is now in the clinical amphitheatre of the Pine Street Hospital.

This history of the Pennsylvania Hospital suggests to a Bostonian the similar subject of the Massachusetts General Hospital. At the beginning of the present century Massachusetts still had no hospital or insane asylum. In 1810, the year of the completion of Mr. West's first picture, a circular letter was issued; in 1811 a charter was obtained, and on July 4, 1818, the corner-stone of the Massachusetts Hospital was laid. The first patient was admitted September 3, 1821. Chronologically, Boston was a follower, *sed longo intervallo*. In other details there was imitation. We note that a mummy from Thebes was presented to the hospital May 4, 1823, it was placed on exhibition, and $1,500 were netted to the hospital. Here, also, miscellaneous sources of revenue were very acceptable. April 9, 1824, the thanks of the trustees were given to Gorham Parsons, Esq., "for the present of a sow of uncommonly fine breed," the weight of which was stated in the visiting committee's records at 273 pounds.

At the end of the year 1825 there were 28 males and 18 females in the hospital. Those were the days of small things; but our predecessors both in Philadelphia and here built well, and left us, moreover, good examples. Philadelphia led Boston in her hospital, but Boston led Philadelphia in the history of her hospital, Mr. Bowditch's history of the Massachusetts Hospital being privately printed in 1851, and a second edition, prepared by Dr. Geo. E. Ellis with a continuation, published in 1872. An interval of twenty-three years, and this handsome history of the Pennsylvania Hospital may suggest to the trustees the desirability of a miscellaneous source of income, and a preparation of a third edition.

## TEMPERANCE TEACHING IN THE PUBLIC SCHOOLS.

A LAW was enacted in Massachusetts in 1885 containing the following provisions:

ACTS OF 1885, CHAPTER 332.

Physiology and hygiene, which, in both divisions of the subject, shall include special instruction as to the effects of alcoholic drinks, stimulants and narcotics on the human system, shall be taught as a regular branch of study to all pupils in all schools supported wholly or in part by public money, except special schools maintained solely for instruction in particular branches, such as drawing, mechanics, art, and like studies. All acts or parts of acts relating to the qualifications of teachers in the public schools shall apply to the branch of study prescribed in this act.

Similar statutes were enacted in other States. Various methods were devised for the purpose of training the youthful mind in this branch of knowledge. Numerous text-books at once came into use, in which the abuse of alcohol formed a prominent feature, and old text-books were remodelled to conform to the provisions of this new law. Many of these books contained radical defects, and some of them were unfavorably criticised in the pages of the JOURNAL. It is needless to say that a marked improvement has followed the first attempt in this direction, and that methods of illustration, and forms of instruction which were first employed are now deemed to be useless. The present executive of the Massachusetts Board of Education has treated the question in an intelligent and progressive manner in the following statement:[1]

"It is the misfortune sometimes of a noble movement to be indiscreetly pushed. Such advocacy leads to reaction, and the cause suffers. In this way temperance is sometimes wounded in the house of its friends. The very commonness, too, of its presentation tends to take off the edge of that presentation, to permit the introduction of an element of cant, and to make of that which should be vital and effective something mechanical and inoperative. Thus temperance, either in its narrower sense of abjuring that which intoxicates, or in its broader sense of high self-control and self-respect, loses something of caste where it should be one of the royal themes. It is a common experience for genuine believers in temperance and workers for temperance to have moods in which they prefer not to hear the subject discussed, — at least, if the discussion promises to follow certain stereotyped ways.

"And yet the conviction is strong and deep, and among no class of people is it stronger and deeper than among teachers, that the young should be trained to temperance as well as to the other virtues. How shall it be done? The earlier laws say, "By moral measures." The later laws say, "By a scientific presentation of the effects of alcoholic drinks, stimulants and narcotics." Both of these classes of laws still stand; both methods are, therefore, obligatory, and it is the duty of school boards and of teachers to respect them. But when we inquire as to what precise methods shall be employed for the moral or scientific enforcement of temperance, the laws are silent. It is safe to say that, whatever those methods may be, they should be in harmony with such pedagogical principles as command general acceptance. In teaching spelling, for instance, it is not regarded as sound principle to put bad spelling before children to correct. There is great danger that the wrong thing a child is cautioned against may make the deeper impression upon him, and sway him more than the right thing. Of course, since the child goes frequently astray, it becomes the duty of the teacher to look sharply after his blunders, and in this way attention is necessarily focussed for a time on departures from good standards. But this does not affect the main principle that, in the initiative of all instruction, the sound thing, the wholesome thing, the right thing, should be presented first; that the minds of children should be directed upward and not downward; that love of higher things is a stronger motive than fear of baser things, — or if, unfortunately, not

[1] Fifty-eighth report of the Massachusetts Board of Education, 1893-1894, p. 137.

a stronger motive, a better motive for first presentation; that, in short, the true way to keep bad things out of the mind is to put good things into the mind.

"Applying this principle to instruction in temperance, it seems to be psychologically a bad method to make the woes of intemperance the main reliance in an endeavor to save people from them. The sad fact, indeed, remains that innocent children are frequently exposed to the repulsive pictures of intemperance, and that, in certain cases, effective lessons for good can be drawn from such experiences; but, as a general principle, there is more virtue in setting before children the joy of right living, with the scientific basis therefor, than the sorrow of wrong living. It is difficult to draw a satisfactory line between the two policies, but the principle is sufficiently conveyed if we say that, whatever attention it may be necessary to give the diseased, the criminal and the awful in intemperance, these are pictures upon which the curtain, if raised at all, should be quickly let fall. The main policy should still be the higher one of filling the soul with good ideals, and of inspiring the pupil, through the exercise of his will, to strive for their attainment.

"Instruction in temperance should be scientific, it is true; but science for little children must be exceedingly simple, — very much like the science involved in that nature study which is now growing in favor with so many of our schools.

"It must not be overlooked that lessons have a deeper meaning and weight for children if they are given and enforced by teachers whom the children respect and love; so that we finally get back in temperance instruction, as in every other kind of instruction, to the living teacher as the most potent influence for good."

This is very well put. There is, however, one point which would bear a little more emphasis: that only "in a narrow and limited sense does the word temperance stand for abjuring that which intoxicates, that in its broader and truer sense the word stands for high self-control and self-respect." It would be a pity that the youthful mind should not be made to understand that even an advocate of "temperance," in the narrow sense, who abjures alcoholic stimulants may still be a very intemperate person. Let the young learn that temperance means moderation, and above all self-control. The methods suggested by the Massachusetts Board of Education for teaching this are excellent.

## THE VITAL STATISTICS OF ENGLAND FOR 1894.

"THE General Abstract of the Marriages, Births and Deaths in England, for 1894," has been received. This document consists of a brief summary which is made up and presented to Parliament early in the year, to be followed several months later by the registrar-general's annual report, which contains full details for each registration district. The annual report contains the corrected figures which are usually a little larger than those of the general abstract. The difference, however, is usually so slight as not to change the decimal figure more than one-tenth. We may, therefore, consider these advance figures of the general summary as sufficiently correct for ordinary comparisons.

The following are the numbers of marriages, births and deaths in England, for 1894, together with the ratio per 1,000 of the estimated population. The registrar-general's estimate of the total population of England and Wales for the middle of 1894 was 30,060,763.

| | England | Ratio per 1,000 living. | | | | |
|---|---|---|---|---|---|---|
| | 1894 | 1894 | 1893 | 1892 | 1891 | 1890 |
| Persons married | 452,218 | 15.0 | 14.7 | 15.4 | 15.6 | 15.5 |
| Births | 889,242 | 29.6 | 30.8 | 30.5 | 31.4 | 30.2 |
| Deaths | 498,515 | 16.6 | 19.2 | 19.0 | 20.2 | 19.5 |
| Excess births over deaths | 390,727 | 13.0 | 11.6 | 11.5 | 11.2 | 10.7 |

In London, similar statistics for the year 1894, are as follows:

| | | Ratio per 1,000 living. |
|---|---|---|
| Persons married | 73,801 | 16.07 |
| Births | 130,853 | 30.02 |
| Deaths | 75,262 | 17.31 |
| Excess of births over deaths | 55,291 | 12.71 |

The following are the quarterly percentages for 1894, for England:

| | Marriages. | Births. | Deaths. |
|---|---|---|---|
| First quarter | 21.1 | 25.7 | 29.7 |
| Second quarter | 23.6 | 24.9 | 23.8 |
| Third quarter | 26.5 | 24.2 | 21.5 |
| Fourth quarter | 28.8 | 25.2 | 25.0 |
| | 100.0 | 100.0 | 100.0 |

The births of males were in the ratio of 1,037 males to each 1,000 females. Of the deaths, 51.3 per cent. were males and 48.7 were females. The great diminution in the death-rate from 19.2 in 1893 to 16.7 in 1894, is quite remarkable considering the comparatively uniform rate of the previous years.

## MEDICAL NOTES.

YELLOW FEVER AT SANTOS.— Yellow fever in its severest form has again broken out at Santos, the daily mortality being six.

CHOLERA IN CHINA — Cholera is reported to be very prevalent in Hong Kong, and in Macao, near Canton. The disease is also said to exist in the northern part of the empire, and to have been brought into Japan by the returning troops.

THE ILLINOIS COLLEGE OF PHARMACY. — The Illinois College of Pharmacy at Chicago has added to its faculty two new professors, Mr. Henry Kraemer, and Mr. Jan B. Nagelvoort.

MEDICINE. — A new monthly medical journal has appeared under this title. It is published by George S. Davis at Detroit, Mich., and takes the place of the *American Lancet*, which lately went out of existence. The first number contains several interesting and well illustrated articles.

DR. RUSH AND GENERAL WASHINGTON. — The article on Dr. Rush and General Washington in the May *Atlantic*, which contains several letters from Dr. Rush to John Adams, is an interesting contribution, and deserves the attention of students of history and of the profession to which Dr. Rush belonged. The writer, Mr. Paul Leicester Ford, states that there exists to-day in Philadelphia an autobiography of Dr. Rush in which frequent comparisons are drawn between himself and Washington to the latter's disadvantage. Unfortunately the publication or sight of it is prohibited, or further light might be thrown on the subject of the paper.

RESULTS OF ANTITOXIN TREATMENT. — Schröder (*Münchener med. Woch.*, April 4, 1895), gives the results of the treatment of diphtheria with antitoxin at the Altona Hospital from September 1, 1894 to March 1, 1895. Sixty-three cases were treated with Behring's serum, in all but seven of which the diphtheria bacillus was found. Of the 63 cases, only eight, or 12.69 per cent., died. In order to show that it was not only in the mild cases that the serum had its effects, he is able to report that 31 of the cases required tracheotomy, and that of these only three died, or 9.67 per cent. This is certainly the most successful series of cases ever reported of operations for stenosis of the larynx. The lowest mortality from diphtheria in the Altona Hospital during the last seven years was 29.23 per cent. in 1891; the highest, 37.27 per cent. in 1888.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, May 8, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 37, scarlet fever 36, measles 114, typhoid fever 15.

A FREE HOSPITAL NOT LIABLE. — The Supreme Court of Connecticut has recently decided in a suit brought against the Waterbury Hospital, for alleged maltreatment, that the hospital was not liable, as no fees were paid to the attending physicians, and no charge was made for treatment.

THE FIRST ANNUAL REPORT OF THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE. — This report, a summary of which was given in the JOURNAL of January 24th of the present year, has just been received. The four medical schools mentioned in the report as now conferring degrees in medicine are, the Medical Department of Harvard University, the Boston University School of Medicine, the College of Physicians and Surgeons, and the Tufts College Medical School. Two schools, graduates of which were exempted from examination under the Medical Registration Act, have become extinct, namely, the Berkshire Medical College, which was at one time the medical department of Williams College, and the New England Female Medical College, which was incorporated in 1850, and in 1874 by act of the Legislature was united with the Boston University School of Medicine. The Worcester Medical College is dormant, no instruction having been given since 1859, but its corporate existence is still maintained. The graduates of this college between 1852 and 1859, the period of its activity, were 72 in number. The Medical Department of Clark University does not confer the degree of M.D., but is intended for the study of the purely scientific branches of medicine.

THE OUTBREAK OF TYPHOID FEVER AT STAMFORD. — In the recent severe outbreak of typhoid fever at Stamford, Conn., all the cases have been traced to a foul well in the stabling shed of H. R. Blackham, a retail milk dealer on Greenwich Avenue, in that part of the city known as Waterside, and it is stated that not a single instance of the disease has occurred in a family which was not supplied with milk by this dealer. Blackham is accused by the citizens of having watered his milk, and it is said to be a fact that he sold his milk at a lower rate than other milkmen; but he claims that he merely washed his pails and cans in the water from the well. At all events, Health Officer Hexamer has made a complaint to the Public Prosecutor against him, and he will have to defend himself in the courts on the charge of violating the city ordinance regarding the selling of unwholesome food. Dr. T. Mitchell Prudden, of New York, who made the analysis of the water of the well for the Stamford authorities, says, in his report on it: "The number of living bacteria of various kinds in one cubic centimetre is 69,660. This number of living germs would be reasonable in sewer water or a cesspool, but indicates in a well which is being used a gross contamination. It may be interesting, as a matter of comparison, to know that the Croton water of New York contains 156 germs to one cubic centimetre. This is a fair average number for good surface water; which, as a rule, is liable to contain more bacteria than that of properly constructed wells." The Common Council has ordered this well and a number of others in the immediate neighborhood closed. It is easy to understand how its water could contain typhoid fever germs, in addition to other bacteria, as it has been found to receive the direct drainage of the privies of several small dwellings which stand on rising ground within twenty-five feet of it. Dr. W. P. Northrup, of New York, who was called in consultation to see the infant of Dr. E. J. Mechs, who was one of the sufferers, states that the number of children under two years of age who had well developed cases of typhoid was remarkable. He had the opportunity of personally examining quite a number of them, and he ascertained that they had all been fed upon the Blackham milk.

### NEW YORK.

IN MEMORY OF DR. ALFRED L. LOOMIS. — At the semi-monthly meeting of the New York Academy of Medicine held May 2d, the session was devoted to

special memorial exercises in honor of the late Dr. Alfred L. Loomis, who was President of the Academy at the time its handsome and commodious new building was erected, and to whose persevering and energetic personal efforts the successful accomplishment of the great enterprise was largely due. On this occasion the eulogies were pronounced by Dr. Lewis A. Stimson, Professor of Surgery in the University of the City of New York, by the Rev. Dr. Henry M. McCracken, Chancellor of the University, and by Ex-Mayor Abram S. Hewett.

Superintendent of the New Aquarium. — Dr. Tarleton H. Bean, of Washington, who is the author, in collaboration with Dr. Goode, of a work on Deep Sea Piscatology, has been appointed superintendent of the new city aquarium at Castle Garden, at a salary of $3,000 a year. Dr. Bean, who for twenty-one years has been connected with the Fish Commission and the Smithsonian Institution at Washington, is an expert on aquariums, and recently passed the Civil Service examination requisite for his appointment with a very high percentage.

## Miscellany.

### STATE ROADS IN MASSACHUSETTS.

In a letter on the subject of State roads in Massachusetts, Col. Albert A. Pope gives a summary of the work done by the Highway Commission under the Act of 1894, authorizing the appropriation of $300,000 to be expended by the Commission in building State Highways. The question of the improvement of our roads is so important to the welfare, and, so far as they facilitate bicycle and equestrian exercise, to the health of the community, that we give a brief summary of the work already done, in the hope that medical men will lend their influence and assistance in furthering legislation to carry on and complete the work already accomplished.

The $300,000 has been pretty evenly divided among fourteen counties. Before deciding which of the many petitions should be granted, an official visit was paid to each locality, and full information as to the value of the proposed improvement collected. While this method has distributed the work in small sections of roads, thus increasing the expense per mile, the advantage to the people at large will be greater, for the reason that each portion of the State highway constructed is intended to be an object-lesson to those living near by. County commissioners and other officials will watch the work as it progresses, and follow out the same lines in building county and other roads which are not intended for State highways.

Wherever the traffic was of sufficient proportions to warrant it the roads have been broadened. The advantage to owners derived from the construction of the way is, as a rule, so much greater than the injury to them by widening the road that, in a large majority of cases, the town officials have been able to procure releases without any cost.

Thirty-eight sections have been contracted for, and only eight of them are to have a width of eighteen feet of hardened surface, all others being fifteen feet wide. As the primary object is to get length of way, the Commissioners are considering the advisability of building single-track roads in the thinly-settled districts. These would not be over nine feet wide, with here and there portions of double width as convenient passing points for carriages. A mile and a half of such roads can be built for less than the cost of a mile of fifteen feet width, and the advantage in getting produce to market is not lessened, provided such construction is confined to localities where the average traffic is from six to eight vehicles an hour.

There is need of legislation to regulate the care of, and responsibility for, sidewalks on State highways. These being of purely local advantage should be under the supervision of the town, the wheelways alone being constructed and kept in order by the State.

Progress has been made in the laboratory work on the road-building stones of the State. Experiments of this kind are carried on at Harvard University in the Lawrence Scientific School, whose dean, Prof. N. S. Shaler, is a member of the Highway Commission. The chief aim of these inquiries has been to determine the qualities which constitute fitness for road making. This will be of value to the Commission in enabling them to utilize the road material near at hand, and thus lessen the cost of construction. As this phase of the work progresses maps are made showing the location of all deposits suitable for road building.

A number of towns have already appropriated money to build their streets in the same careful manner as those constructed by the State, and others have purchased road machinery with the intention of extending the work on roads other than State highways.

Careful consideration has been given to the plan of planting shade trees along the highways. With this end in view, experts have been consulted concerning the best varieties for the purpose, and the wayside trees have been examined, so as to determine the species well adapted to the climate and soil of Massachusetts.

### THE CAUSE OF PREMATURE BALDNESS.

Leslie Phillips, M.D., in the April number of the *Birmingham Medical Review*, after showing the fallacy of the argument that the greater frequency of baldness in men than in women is due to lack of ventilation in the head covering, the pressure of the hard head gear interfering with the circulation, etc., offers a more obvious and to all appearances reasonable explanation. He says:

"This marked difference in the two sexes coincides with very marked differences in the conventional treatment of the hair. The association and relation of these two circumstances obviously agree with and are an example of the well-known pathological proposition that disuse leads to atrophy. In men the hair is habitually cut short from childhood, while in women the converse is almost universally true. In boyhood and manhood by clipping or cutting the hair we remove the gentle traction on the bulb and follicle which the natural weight of the hair exercises, and which constitutes the essential and natural stimulus necessary to secure due innervation and vascular supply to the hair-producing structures. Loss of vigor, and finally more or less pronounced atrophy, is the inexorable result, modified or delayed, it may be, by collateral circumstances, predispositions or conditions. In the light of the same consideration, the rationale of the beneficial influence of regular, gentle, and prolonged dressing and brushing of the hair is to be sought for in the stimulating influence of traction upon the circulation within the hair bulb and follicle."

He further calls attention to the fact that the treatment of loss of hair in women is much more successful than in men, and the prognosis is also much better in women. He refers to the tendency of the "eman-

cipated woman" to cut her hair short in terms of condemnation, and points out that in assuming this mannish convention they are taking a retrograde, and not a forward step, and calls attention to the fact that Jeremiah puts cutting off the hair in the same class as circumcision, which, like other mutilations, has been shown to be of the nature of a representative sacrifice.

"In the case of men and emancipated hair-cropped women, we contravene Nature's law; and Nature's revenge is — slowly, perhaps, but none the less surely — atrophy." If the emancipated women can be made to believe that wearing the hair short brings with it the danger of baldness, she will have to be very thoroughly emancipated, or she will give up this method of emphasizing her masculinity.

## THERAPEUTIC NOTE.

THE STERILIZATION OF CATGUT. — Johnston[1] recommends a method for sterilization of catgut devised by Krönig, one of the assistants of Zweifel of Leipzig, and used with success by him in the hospitals with which he is connected at Grand Rapids, Mich. It is intended to do away with the necessity of boiling under pressure which obtains when alcohol is used as a medium, owing to its low boiling point. The method, as described by Johnston, is as follows:

"Krönig therefore uses cumol, which is obtained by the distillation of coal tar, and whose boiling point is about 170° C. In this the gut can be boiled one hour without the least injury, providing it is first thoroughly dried by being subjected to dry heat at 70° C. for about two hours. Care must be taken that the temperature of the incubator or drying oven be *slowly* raised to the desired point, else the gut will be rendered brittle; also, that the temperature be not allowed to exceed 100° C., else the integrity of the gut will be injured. When dry, the gut, which has previously been cut into proper lengths and wound into coils of any desired size, is transferred to a glass jar filled with cumol, which is then placed in a sand bath. Care should be taken that the sand surrounds the jar to about two-thirds of the height of the cumol, in order that the latter may become heated as evenly and rapidly as possible. The jar is then covered with a piece of glass or wire netting to prevent the cumol from accidentally catching fire, and a couple of Bunsen burners are placed under the sand bath. When the boiling point of the cumol is approached one of the burners is removed, the other being sufficient to keep the cumol at or near its boiling point. If it boils no harm is done, as the gut when properly dried bears a temperature of 170° C. in cumol without injury, but the consumption of cumol is then unnecessarily great. At the end of one hour the second burner is removed, and when the cumol has cooled the catgut is removed with sterile forceps and placed in a sterile jar filled with petroleum benzine in order to remove the cumol, which is an oily fluid. The gut can remain in the benzine permanently; or be transferred to sterile Petri dishes at the end of three or four hours, and kept dry; or be preserved in absolute alcohol, as is done in the hospitals with which I am connected. Catgut prepared carefully in this manner retains its original qualities and is absorbed in from seven to fourteen days, according to size."

[1] American Journal of Obstetrics, April, 1895.

## METEOROLOGICAL RECORD,

For the week ending April 27th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A. M. | Relative humidity. 8.00 P. M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A. M. | Direction of wind. 8.00 P. M. | Velocity of wind. 8.00 A. M. | Velocity of wind. 8.00 P. M. | We'th'r.* 8.00 A. M. | We'th'r.* 8.00 P. M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S..21 | 30.17 | 50 | 60 | 39 | 53 | 47 | 50 | W. | S. | 5 | 12 | C. | C. | |
| M..22 | 29.98 | 52 | 60 | 43 | 38 | 100 | 69 | S.W. | S.W. | 16 | 5 | F. | R. | .19 |
| T..23 | 29.86 | 54 | 64 | 44 | 67 | 40 | 54 | W. | W. | 5 | 25 | F. | C. | .02 |
| W..24 | 30.03 | 53 | 66 | 40 | 42 | 49 | 46 | W. | S.W. | 9 | 15 | C. | O. | |
| T..25 | 29.97 | 66 | 80 | 52 | 63 | 54 | 58 | S.W. | S.W. | 7 | 8 | O. | C. | |
| F..26 | 30.21 | 54 | 60 | 47 | 49 | 80 | 64 | E. | N.E. | 6 | 8 | C. | C. | |
| S...27 | 30.29 | 44 | 47 | 41 | 79 | 94 | 86 | N.E. | N.E. | 12 | 8 | O. | R. | .14 |
| ☞ | 30.07 | | 63 | 44 | | | 61 | | | | | | | .35 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 27, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from Infectious diseases. | Acute lung diseases. | Diarrheal Diseases. | Diphtheria and croup. | Measles. |
|---|---|---|---|---|---|---|---|---|
| New York | 1,856,000 | 885 | 342 | 12.43 | 21.01 | .99 | 4.07 | 2.09 |
| Chicago | 1,800,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 463 | 153 | 11.44 | 16.72 | .88 | 5.72 | .88 |
| Brooklyn | 1,013,000 | 457 | 161 | 12.98 | 21.12 | .88 | 7.26 | 2.42 |
| St. Louis | 540,000 | — | — | — | — | — | — | — |
| Boston | 501,167 | 223 | 70 | 9.45 | 26.55 | — | 4.50 | — |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 140 | 34 | 7.44 | 12.09 | 4.65 | — | — |
| Cincinnati | 325,000 | 97 | 21 | 3.09 | 20.60 | 1.03 | 1.03 | — |
| Cleveland | 325,000 | 107 | 42 | 7.44 | 12.09 | 4.65 | — | — |
| Pittsburg | 272,000 | 88 | 33 | 13.68 | 13.68 | 7.38 | 2.28 | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 49 | 6 | 8.16 | 21.21 | 4.08 | — | — |
| Charleston | 65,165 | 26 | 9 | 11.55 | 7.70 | 7.70 | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 20 | 11 | 15.00 | 35.00 | — | 5.00 | — |
| Fall River | 92,253 | 35 | 12 | 11.44 | — | 2.86 | 5.72 | — |
| Lowell | 90,613 | 39 | 21 | 2.56 | 12.80 | 2.56 | — | — |
| Cambridge | 79,607 | 28 | 11 | 10.71 | 14.28 | 7.14 | 3.57 | — |
| Lynn | 65,123 | 27 | 9 | 18.50 | 11.11 | — | 7.40 | — |
| Springfield | 50,284 | 22 | 9 | 9.10 | 27.30 | — | 4.55 | 4.55 |
| Lawrence | 41,940 | 20 | 9 | 30.00 | 15.00 | 5.00 | 5.00 | — |
| New Bedford | 47,741 | 17 | 10 | 5.88 | 11.76 | — | — | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 15 | 3 | 6.66 | 13.33 | — | — | — |
| Salem | 33,158 | 6 | 1 | 16.66 | — | 16.66 | — | — |
| Haverhill | 32,925 | 11 | 5 | 9.09 | — | — | — | — |
| Malden | 30,209 | 11 | 2 | 18.18 | 9.09 | — | 9.09 | — |
| Chelsea | 29,806 | 16 | 6 | 6.25 | 12.50 | — | — | — |
| Fitchburg | 29,393 | 7 | 1 | — | 14.28 | — | — | — |
| Newton | 28,837 | 7 | 1 | — | — | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 3 | 2 | — | — | — | — | — |
| Waltham | 22,058 | 4 | 0 | — | 25.00 | — | — | — |
| Quincy | 19,642 | — | — | — | — | — | — | — |
| Pittsfield | 18,862 | 3 | 0 | 33.33 | — | — | 33.33 | — |
| Everett | 16,585 | 10 | 2 | — | — | — | — | — |
| Northampton | 16,331 | 2 | 0 | — | — | — | — | — |
| Newburyport | 14,073 | 7 | 1 | — | 14.28 | — | — | — |
| Amesbury | 10,920 | 1 | 0 | — | — | — | — | — |

Deaths reported 2,975; under five years of age 1,025; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 327, acute lung diseases 569, consumption 351, diphtheria and croup 122, diarrheal diseases 44, measles 38, scarlet fever 36, whooping-cough 27, typhoid fever 23, erysipelas 17, cerebro-spinal meningitis 11, malarial fever 9.

From scarlet fever New York 12, Providence 5, Boston and Cleveland 3 each. Philadelphia and Brooklyn 2 each. Washington, Fittsburg, Nashville, Lynn, Somerville, Lawrence, Brockton, Malden and Chelsea 1 each. From whooping-cough New York 17, Philadelphia 4, Brooklyn 3, Cincinnati, Lynn, and Haverhill 1 each. From typhoid fever Philadelphia 10, New York 3, Boston, Pittsburg and Lawrence 2 each; Washington, Nashville, Charleston and Fall River 1 each. From erysipelas Brooklyn 6, Boston 5, New York 3, Philadelphia 2, Wor-

cester 1. From cerebro-spinal meningitis New York 4, Washington, Worcester, Lynn, Somerville, Lawrence, New Bedford and Woburn 1 each. From malarial fever New York 9.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 27, 1895, TO MAY 3, 1895.

Leave of absence for two months to take effect upon the conclusion of his examination to determine his fitness for promotion, is granted FIRST-LIEUT. HENRY D. SNYDER, Assistant Surgeon United States Army.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 4, 1895.

E. R. STILT, passed assistant surgeon, detached from U. S. S. "Chicago," and to Nicaragua Canal Board inspection of work on the Isthmus.

H. G. BEYER, surgeon, detached from Naval Academy and to the "Monongahela."

L. W. ATLER, passed assistant surgeon, from the New York Hospital and to the "Richmond."

J. M. EDGAR, passed assistant surgeon, from the "Richmond" and to the school ship "Saratoga."

V. C. B. MEANS, passed assistant surgeon, from the "Saratoga" and to the New York Hospital.

ROBERT BOYD, assistant surgeon, from Philadelphia Hospital and to the "Monongahela."

LEWIS MORRIS, assistant surgeon, ordered to the Philadelphia Naval Hospital.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING APRIL 30, 1895.

C. S. FESSENDEN, deputy surgeon, detailed for duty on Board for examination of officers Revenue Cutter Service, April 17, 1895.

J. B. HAMILTON, surgeon, granted leave of absence for twelve days, April 20, 1895.

G. W. STONER, surgeon, detailed to represent service at meeting American Medical Association, April 25, 1895.

F. W. MEAD, surgeon, detailed as Chairman, Board for physical examination officers Revenue Cutter Service, April 17, 1895.

C. E. BANKS, passed assistant surgeon, when relieved to report at Bureau for duty as Chief of Purveying Division, April 24, 1895. Granted leave of absence for fourteen days, April 29, 1895.

L. L. WILLIAMS, passed assistant surgeon, detailed for duty on Board for examination of officers Revenue Cutter Service, April 17, 1895.

W. C. MCINTOSH, passed assistant surgeon, detailed for duty on Board for examination of officers Revenue Cutter Service, April 17, 1895.

J. J. KINYOUN, passed assistant surgeon, detailed to represent service at meeting American Medical Association, April 25, 1895.

R. M. WOODWARD, passed assistant surgeon, to proceed to Ashtabula, Ohio, as inspector, April 19, 1895.

C. P. WERTENBAKER, passed assistant surgeon, granted leave of absence for ten days, April 16, 1895.

B. W. BROWN, passed assistant surgeon, detailed as Recorder, Board for physical examination officers Revenue Cutter Service, April 17, 1895. Granted leave of absence for twenty days, April 23, 1895.

W. J. S. STEWART, assistant surgeon, to rejoin Station at Washington, D. C., April 20, 1895.

EMIL PROCHAZKA, assistant surgeon, to proceed to Evansville, Ind., for temporary duty, April 29, 1895.

A. R. THOMAS, assistant surgeon, granted leave of absence for thirty days, April 19, 1895.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— The last regular meeting of the Society, for the season, will be held at the Medical Library, 19 Boylston Place, on Monday evening, May 13, at 8 o'clock.

Dr. Clarence J. Blake will present a paper entitled, "An Infirmary for Harvard College."

Dr. G. W. Fitz: "A College Infirmary from the Standpoint of Official Medical Visitation."

Mr. C. H. Walker: "Hospital Construction."

The following gentlemen have been asked to discuss the topics of the evening: Dr. H. P. Walcott, Dr. J. L. Hildreth, Dr. Walter Ela, Mr. Edmund M. Wheelwright and Mr. A. G. Everett.

JAMES G. MUMFORD, M.D., *Secretary*.

NORFOLK DISTRICT MEDICAL SOCIETY.— The Annual Meeting will be held at the Old Dorchester Club House, Tuesday, May 14th, at 12 M.

The Board of Censors will meet at the same place, at 12.30 P. M.

The Examination of Candidates will take place one week later, on Tuesday, May 21st, at 7 P. M., at the office of the Secretary, 130 Warren Street, Roxbury. The written Examination will begin at 7 P. M., the oral at 8 P. M.

Order of Business: (1) Reading of Records, (2) Reports of Committees, (3) Report of Treasurer, (4) Election of Officers, (5) Incidental Business.

The Annual Address will be delivered by C. E. Stedman, M.D.

The Secretary particularly requests that all who expect to attend the Annual Meeting, will notify him, so that he may be able to make suitable provision for the dinner.

JAMES C. D. PIGEON, M.D., *Secretary*.

130 Warren Street, Roxbury.

AMERICAN NEUROLOGICAL ASSOCIATION.— The Association will hold its twenty-first annual meeting in Boston on the 5th, 6th and 7th of June, in the rooms of the Society of Natural History, on the corner of Berkeley and Boylston Streets. The programme of the meeting will be published later.

AMERICAN PEDIATRIC SOCIETY.—The Society will hold its Seventh Annual Meeting at the Virginia Hot Springs, May 27, 28, and 29, 1895. The Society will be the guests of the Virginia Hot Springs Company.

SAMUEL S. ADAMS, M.D., *Secretary*.

## APPOINTMENT.

FRANKLIN GREENE BALCH, M.D., has been appointed surgeon to out-patients at the Carney Hospital.

## RECENT DEATH.

PATRICK HENRY CAMPBELL, M.D., M.M.S.S., died in Dorchester, May 3, 1895, aged thirty years.

## BOOKS AND PAMPHLETS RECEIVED.

The Therapeutical Employment of Ferropyrin. By Dr. W. Cubasch, Stansstad. Reprint. 1895.

A Unique Form of Motor Paralysis Due to Cold. By Ezra Clark Rich, M.D., of Ogden City, Utah. Reprint. 1894.

Progress in the Care and Treatment of the Insane during the Half-Century. By Edward Cowles, M.D. Reprint. 1894.

On Rheumatic and Allied Affections of the Pharynx, Larynx and Nose. By W. Frendenthal, M.D., New York. Reprint. 1895.

Malposition of the Testicle; Phimosis; Acute Insanity; Operation; Cure. By Howard Crutcher, M.D., Chicago, Ill. Reprint. 1895.

The Advertiser's Handy Guide for 1895. Compiled and published by the Lyman D. Morse Advertising Agency, 38 Park Row, New York.

Free Hydrochloric Acid; Is its Absence from the Stomach a Sign of Cancer? By Richard B. Faulkner, M.D., Alleghany, Pa. Reprint. 1895.

Subvolution; A New Pterygium Operation. Ripening of Immature Cataract by Direct Trituration. By Boerne Bettman, M.D., of Chicago. Reprints. 1894-95.

The Relative Age-Occurrence of Colles' Fracture; A Table of Nine Hundred and Eighty-eight Cases. By Charles A. Powers, M.D., of Denver, Col. Reprint. 1895.

Ainhum. The Treatment of Syphilis with Intravenous Injection of Mercuric Chlorid. By Walter Lytle Pyle, A.M., M.D., of Washington, D. C. Reprints. 1895.

The Practical Examination of Railway Employés as to Color-Blindness, Acuteness of Vision and Hearing. A New Wool-Test for the Detection of Color-Blindness. By William Thomson, M.D., Philadelphia. Reprints. 1882-1894.

Ophthalmia Neonatorum. The Importance of Active Treatment of the Naso-Pharynx in the Treatment of Obstructive Disease of the Lachrymal Passages. A Case of Albuminuric Retinitis. By C. A. Veasey, M.D., Philadelphia, Pa. Reprints. 1895.

## Original Articles.

### CASES ILLUSTRATING THE PLASTIC SURGERY OF THE NOSE AND PALATE: AN OPERATION FOR CLEFT PALATE.[1]

BY H. L. SMITH, M.D.,
*Assistant Visiting Surgeon of the Boston City Hospital.*

THE operations here described were performed during the past year at the Oral Hospital connected with the Boston Dental College. They are seven in number, four having been done for various defects of the nose, and three for cleft palate. The nasal cases will be reported quite briefly, that special attention may be called to the method employed for the restoration of the palate.

PROMINENCE OF NASAL BONES FOLLOWING FRACTURE; SKIN FLAP RAISED TO ROOT OF NOSE; PROJECTING BONE CHISELLED OFF; LOOSE CARTILAGE SUTURED; SEPTUM STRAIGHTENED; IMPERCEPTIBLE SCAR; SUGGESTED METHOD OF REMOVING INTRA-NASAL GROWTHS.

The deformity resulting from fracture of the nose may be one of two kinds. Probably the more common form is associated with the well-known sunken bridge, the depression beginning near the root of the



nose, and extending nearly to its tip. With it are associated some of the well-recognized displacements of the bony and cartilaginous septum. Correction of this deformity consists in "setting up" the nasal bones, and in correcting the position of the septum. In the second variety to which the following cases belong, the nasal bones themselves are either not depressed at all, or the depression is upon one side only, or, in addition, during the process of repair, a distinct thickening occurs at the lower end of one or both bones. Generally this apparent projection of the bone is due in large measure to the separation and downward displacement of the lateral cartilages, the lower ends of the bones projecting sharply beneath the skin. The deformity thus produced is often very noticeable, and is exaggerated by all motion of the facial muscles, such as eating or talking. The changes in the septum are similar to those in the first variety.

Two operations, at least, have been used for the relief of this condition. The simplest plan is to cut directly down on the prominent bone, generally by a vertical incision running along the ridge of the nose, then to turn a skin flap to each side, remove the offending tissue and suture the flaps. Roe[2] has operated by passing a suitably curved knife into the nasal cavity, perforating the mucous membrane, and then shaving off the required amount of tissue subcutaneously. The only and obvious objection to the first operation is the resulting scar. The second method was not used in the cases reported, because it was thought impracticable to remove in this way the very dense bone which caused the deformity. As the result showed, it would have been very difficult, to say the least, for even with the open incision it was a matter of very great difficulty. Moreover, another advantage offered by the open method was the opportunity which it afforded of correcting the lateral deformity at the same operation.

CASE I. A male nurse, forty years old, received a fracture of the nose when a child. At the present time the lower extremity of the right nasal bone projects strongly against the skin, and is evidently increased in size by the process of repair. All the cartilages of the nose, down to the tip, are abnormally movable, giving very slight support to the organ. The nose, as a whole, is turned toward the right side, and the tip droops. The septal cartilage is dislocated from its ridge into the left nostril, and at the same time its centre bulges in the same direction, so that the left nasal passage is nearly occluded. The operation proposed was explained to the gentleman; and he requested that it be done, although it could not be foreseen just how far the incisions would have to be carried. The plan was to cut across the septum at its middle and to make a second incision in each alar groove, the two skin incisions to be



joined by a third, passing along the mucous membrane just inside the nostril. By this means it was hoped that the skin might be lifted from the entire nose, without extending the lateral cuts beyond the natural crease beside the ala. If this could be done, the resulting scar would be inconspicuous. The plan proved even more feasible than was expected, and the whole nose was thus laid bare. With chisel and cutting-forceps the bone was trimmed down to the level desired. The left lateral cartilage, which was more loosely attached than its fellow, was brought up toward the nasal bone by a suture passed through the fibrous tissue overlying each, and in this manner the lateral deflection of the nose was diminished. Although correction of the septal deflection had not been intended, the incision gave so good access to the nasal cavity that the cartilage was loosened from its new base and pressed toward the median line. No instruments were at hand for carrying out any one of the recognized operations for deviated septum, and permanent relief was not hoped for, yet the nostril was so well opened by the simple procedure, that no further interference has been required; and at the present time, nearly a year later, there appears to be no tendency toward further closure. The skin flap was then replaced, and fine silk sutures applied at the alæ and septum. They were removed on the third day, and the line of incision was hardly visible at the end of two weeks. The nose became slightly discolored, and was somewhat swollen for several weeks. The patient had an attack of tonsillitis during the process of repair, but suffered very little discomfort that could be referred to the operation.

CASE II. This case was almost identical with that just reported. The deformity was upon the opposite side, the

[1] Read before the Boston Society for Medical Improvement, March 4, 1895.

[2] Roe: Medical Record, New York, vol. xl, 1891, p. 57.

septum being deflected into the right nasal cavity, where it was adherent to the right inferior turbinate over a considerable area. It was separated, and replaced in the median line at the time of the operation, and has given no more trouble. Access to the nose was found quite as complete as in the previous case, and the resulting contour of the nasal bridge was perfectly satisfactory. Here, too, the lateral cartilage was drawn up by a suture.

It need hardly be said that the method here described is applicable only in those cases where the nasal bones are prominent rather than depressed, and where it is evident that the contour will be satisfactory if the redundant and projecting tissue is removed. Apparently it could be quite well applied to those cases where the natural shape of the organ, due chiefly to the prominence of the nasal bridge, amounts to a deformity.

The procedure of freeing the alæ in order to obtain a better access to the nasal cavity is an old expedient; but the writer has seen no statement of its use in combination with an incision across the septum, with the complete flaying of the nose, for the purpose of gaining access to the nasal bridge.

The size of the opening into the nostrils which was disclosed in these operations leads to the suggestion that the same incision might be employed for the purpose of gaining access to the nasal space, in the case of large intra-nasal growths. The operations devised for attacking this space from in front, such as Cheever's, Ollier's, Langenbeck's, Dieffenbach's, v. Brun's, etc., require incision through the skin of the nose or cheek, which necessarily leave scars. In most of the operations, and Ollier's notably, the needed room is gained by pressing the cartilaginous and bony septum to one side. In Cheever's operation, as I understand it, this is not necessary, and the latter seems to have the advantage of giving greater entrance space than any other. After lifting up the skin flap in the way here suggested, it is an easy matter to cut through the lateral cartilages, or separate them in the median line, and then it remains only to press to one side the flexible septum in order to gain a passage into the nasal space as large as that given by most of the operations named. If necessary temporary resection of the nasal bones could be employed without lengthening the skin incision.

"PUG NOSE"; INCISION THROUGH SEPTUM; SKIN RAISED FROM TIP OF NOSE; WEDGE OF CARTILAGE REMOVED.

A prominent nasal tip is sometimes repugnant enough to its owner to call for surgical relief. The protuberance has been removed by various methods, and is commonly believed to be made up of fat tissue. In the following case there was no increase of tissue, but an abnormal shape of the cartilage.

CASE III. The patient, a lad of sixteen, had a prominent tip to the nose, the organ projecting forward rather than upward, and the tip feeling rather dense. An incision was made through the middle of the septum and continued through the mucous membrane out to the ala, on each side, but without involving the skin of the ala. This incision was found sufficient to allow the skin to be turned up over the tip of the nose. The prominence was now found to be due entirely to a crumpling of the cartilages, which had been curved upon themselves in some such way as is natural in the cartilages of the ear. There was no extra amount of fatty tissue. The two upward-projecting pieces of cartilage were removed by including them in a wedge-shaped piece which was excised, the edges being then sutured with fine silk. In this way the somewhat broad tip of the nose was narrowed, and its prominence distinctly diminished. On returning the skin to its place it was found too large for the shrunken organ, and a portion of the septum was removed. A moderate amount of swelling supervened, and it was several weeks before the permanent shape was attained. It was then found that still more tissue might have been sacrificed, although the result is now quite satisfactory to the patient.

FORMATION OF A SEPTUM NASI FROM THE UPPER LIP.

CASE IV. The patient was a girl of thirteen, who at the age of eighteen months had had an ulceration of the septum lasting nearly a year, and resulting in the destruction of the septum and a portion of the tip of the nose, the nostrils thus being thrown into a single cavity for a distance of about two centimetres. The operation was undertaken at the earnest request of a lady who was desirous of adopting the child, in case the deformity could be lessened. I remembered to have seen Prof. C. B. Porter make a nasal bridge for a man, and recalled his remark that the mucous membrane would gradually take on the character of the skin, and the hair of the lip cease to grow. Such an operation was suggested for this case, and was requested. Owing to the undermining of the upper lip it was feared that the blood-supply would not prove sufficient, and in fact for some days there was a doubt whether the flap would survive. No sloughing occurred, however, although on account of this fear it was impossible to cut up as far on the lip as was desired, or to push the new flap deep into the nose. As a consequence several operations have been necessary. The new septum is rapidly losing its reddish color, and is fairly satisfactory. The scar in the lip has a tendency to keloid formation, which thus accentuates the cicatrix, and the latter is not absolutely in the median line, although when the incisions were made great care was taken to have them central. While the friends express themselves as satisfied with the change, I am not entirely pleased with the result, and in another case would prefer before resorting to the knife to try the effect of an artificial contrivance, which could be fastened to some support passed into the nostril.

CLEFT PALATE.

In discussing this subject I shall omit all controversial matters, such as the comparative value of the operation and the appliance, at what age we should interfere, etc., and deal briefly with the following points:

(*a*) What function impaired by this deformity are we attempting to restore, and what is the cause of its impairment or loss?

(*b*) What is the surgical problem presented in attempting to restore such function?

(*c*) How, if at all, do the operations now in use fail to solve this problem?

(*a*) To the first of these questions there can be but one answer — the restoration of normal voice. In the infant, to be sure, the question of ability to swallow may for a time be uppermost, but that problem, if it is capable of solution, is solved by the nimble tongue, long before operation is thought of. We are led at once to the second part of the inquiry, namely, in what way does the cleft palate prevent natural speech. I do not know that this problem has been worked out with the care it deserves. Without being dogmatic, perhaps the following will be accepted as reasonably accurate: For vocal resonance there should be a roomy oral vault, without obstruction anywhere. For the production of all the open vowels and of all the consonants save the nasals, there must be perfect closure of the post-nasal space. In effect-

ing this closure the velum palati does not simply swing backward and upward, as if hinged at the posterior edge of the palate bones. The process is a modified sphincter action, the chief muscles taking part being on each side the levator palati and the superior constrictor of the pharynx. When the vault of the pharynx is shut off, the velum is so raised that it extends for a little space directly backward on a level with the palate bones, and then curves gradually downward and backward, its posterior surface striking the posterior wall of the pharynx, at some distance from the free edge. In this act the anterior fold of the edge of the velum, made of the palato glossus muscles, does not come in contact with the pharyngeal wall at all, this being left for the part represented by the palatopharyngeus, the uvula projecting between these folds in much the same way as the tonsil projects between the two faucial pillars.

It must be remembered that at the same time that the velum is being lifted upward and backward the pharyngeal space is narrowed, laterally, by this action of the superior constrictor, which muscle also, at least in some cases that I have observed,[3] raises the whole pharyngeal wall directly upward, even at the posterior surface, where it is least movable on account of the closeness of the vertebral bodies. Another rather curious feature of this closure is the behavior of the uvula. When the contact of the velum with the posterior wall is light, it stands pointing downward and forward at an angle of about 45°; but when the closure is very firm, instead of being carried bodily back against the wall of the pharynx, as might seem its natural action, the whole uvula disappears from view, being literally telescoped into itself, by the contraction of the azygous uvulæ. Precisely what effect such a movement has we can only conjecture, but it may be conceived that the velum is thus thickened in the median line, at a point where, on account of the presence of the vertebræ, the sphincter action is at a certain disadvantage, and the perfect closure of this space is thus assured.

(*b*) What, then, is the problem? Obviously it is to restore the continuity of the sphincter, and to replace at the posterior edge of the palate bones a muscular velum voluminous enough to bridge the chasm and form a flexible veil to be lifted by its own muscles up against the posterior pharyngeal well in the required vaulted shape. Any operation which falls short of this cannot, if our reasoning be true, prove satisfactory. The chief difficulty of the problem lies in the fact that there is a loss of tissue. It would be a small thing to bring together the edges of a sphincter which had been merely separated; but with the loss of even a small portion of the normal velum, the still further decrease resulting from freshening the edges, and the contraction which occurs during the healing process must evidently leave a valve considerably less voluminous and less supple than normal.

(*c*) The facts just stated explain fully why there has been such a large proportion of failures, so far as restoration of function is concerned, after surgical operations. Primarily the surgeon has directed his attention toward getting union of the edges, and to accomplish this he soon found it necessary to devise methods of relieving tension. Simple lateral incisions were tried, but were not enough. Dieffenbach,[4] who devised this lateral incision, afterward proposed chiselling through the palatal process and displaced it inward on each side, an operation which Furgusson[5] revived many years after and is generally known by the latter's name. The latter gentleman also made incisions through the velum and performed tenotomies of the levators to relieve tension. Langenbeck[6] in 1861 made public his use of the muco-periosteal flap, and his work has served as the basis for all operations since. Drs. John C. Warren[7] and Mason Warren[8] developed the operation in this country in about the same lines as the German workers, though independently. The latter seems to have been the first one to close the cleft with flaps of mucous membrane. Billroth chiselled off and displaced inward the internal pterygoid process, recognizing, more clearly than any one before, the sphincter-like action of the velum, and the necessity for relieving the tenseness which is sure to follow the ordinary operation. Passavant[9] tried to displace the velum backward, by a lateral incision, but apparently with but partial success, although the idea seems to be more promising than any other for the relief of the nasal speech. Probably it failed in not relieving the tenseness of the velum, so that, although the latter reached farther back toward the posterior wall than before, it could not be arched and approximated closely enough to close the posterior passage.

Other operators have attempted to increase the length of the velum either by plastic operations in the region of the uvula, or by attaching to it behind a flap of mucous membrane dissected from the posterior pharyngeal wall or from other parts in the vicinity. These very ingenious procedures failed of their object from the fact that the new tissue was devoid of muscle, and therefore acted merely as a foreign body, in one case tacked on to the velum, and serving rather as a hindrance to its action. Passavant even sutured the posterior edge of the velum at its centre to the pharyngeal wall, leaving a space on each side. He hoped thus to prevent nasal speech and at the same time to permit the passage of air through the nasal passages. The result was only moderately satisfactory.

None of these many attempts to secure a good voice have proved constantly successful, because none of them secures the formation of a voluminous flexible velum composed of muscular tissue. For the ten years following Langenbeck's work the operation was done very frequently, but during the 70's it fell into well nigh complete disuse, partly owing to the unsatisfactory results of the operation and partly due to the improvements made in the artificial appliances. In the early 80's, largely through the advocacy of J. Wolff, the operation was taken up again, and since then there has been a more or less vigorous competi-

[3] This was especially well seen in the case of a woman of about fifty years who had a cleft running forward to the incisor teeth, but which involved the right nostril only. The posterior wall of the pharynx could easily be studied through the cleft, and during all attempts to shut the nasal passage off from the mouth the mucous membrane in the centre of the pharynx was seen to be thrown into folds as it was raised, the amount of this elevation being at times fully a centimetre. No doubt this represents an unnatural degree of motion, due to the changed conditions, although a smaller movement is sometimes present in normal throats.

[4] Dieffenbach: Die operative Chirurgie, Leipzig, 1845, s. 415.

[5] Furgusson: Medico-Chirurgical Transactions, London, 1843, vol. xxviii.

[6] Langenbeck: Archiv. f. klin. Chir., ii, 1861, s. 205; also same, v, 1863, s. 1.

[7] J. C. Warren: American Journal Medical Science, vol. xi, p. 1, 1828.

[8] J. Mason Warren: New England Quarterly Journal Medicine and Surgery, No. 4, p. 338, 1843; also American Journal Medical Science, vol. xxv, p. 95, 1853.

[9] Passavant: Archiv. f. klin. Chir., 1864, vi, s. 333.

tion between the operators and the makers of the appliances. Wolff's [10] first successes were reached by a combination of operation and artificial velum. His patients were made to use at once an apparatus which could be worn back of the repaired velum, and served to lengthen it and thus insure contact with the posterior wall. With confidence in his ability to make clear sounds thus established, the patient who would otherwise soon become discouraged would continue his efforts and after a time would be able to dispense with the artificial aid. Later Wolff discarded the appliance in most cases having developed his method of instruction so that it became unnecessary.

This fact, that the successes of the last named surgeon, who probably has a better record than any other operator in this line of work, were accomplished by means of such particular attention to methods of training the speech, seems to strike at the root of the whole matter. The operation alone is but one factor in the result. Quite as much depends on the intelligence, patience and willingness of the individual, and the knowledge, on the part of the teacher, of the instruction required. The work done by Herr Gutzmann, the deaf and dumb teacher in Germany, in the instruction of these afflicted with the cleft palate, bears out the above statement. Much can be done, even with no operation, to make an utterly unintelligible speech fairly clear. An operation which succeeds in closing the cleft, but leaves a short, tense, thick velum, which is almost immovable, is of no use whatever, and no one will honestly deny the superiority of the artificial velum to such a condition. On the other hand, I believe there is no one who would not express a preference for the operation if it could accomplish the same ends. There can be no doubt that the whole velum changes its shape in the production of each sound, its surface being thrown into varying curves, as finely drawn as those of the sensitive and expressive face by the muscles and nothing can take the place, in the production of pleasing sounds, of this active and delicate organ of speech.[11] Some hint of this constant use of the velum in the production of sounds can be obtained by examining the throat during the pronounciation of some of the open vowels. Although there are few that permit the palate to be seen, since they require the closure of the mouth for their correct production, yet it can easily be proven that the velum is extremely mobile, changing its position and shape with every change in tone, and even with the character of the inspiration and expiration, and that the other muscles of the throat and base of the tongue, especially the superior constrictor, take part in the process. To reproduce this power then in the case of a cleft, no appliance could accomplish as much as a muscular velum, provided only the latter reaches far enough back and is sufficiently under control.

The operation performed by the writer in the cases reported has for its main object the formation of such a velum as is described above. Assuming that the separation is of moderate width, and extends about half way through the bony palate, the operation is done as follows: From the anterior end of the cleft an incision is made running outward and a little backward toward the alveolus, about one-third the distance to the teeth, when the direction of the incision is changed so that it is carried in a straight line nearly to the posterior extremity of the alveolar process. The point at which this incision ends depends somewhat upon the case, care being taken that there is left sufficient tissue for the blood-supply of the flap. A corresponding incision having been made upon the opposite side, the two flaps thus outlined are dissected up from the bone, the periosteum being included, and are freed completely from the posterior edge of the palate bones behind. This last act is very important, as only thus can the velum be really carried backward and so lengthened. An incision is now made on each side, beginning at the point, near the last molar, where the preceding incisions terminated, and running along in a curve, close to the roots of the teeth as far forward as is necessary or as is deemed safe, sufficient space being left in front for the nourishment of the flaps. This cut will usually terminate near the lateral incisors. There are thus formed two triangular flaps, composed of mucous membrane and periosteum, which are carried into the median line and sutured together. The freshened edges of the velum are now sutured, and the posterior edges of the anterior flaps are sewn to the middle of the newly-formed velum. If deemed best tension can still further be guarded against by extra sutures placed in the velum, at some distance from the edge. In case there seems danger that the palate may be carried too far forward during the process of repair, through contraction of the flaps, it has seemed to the writer quite feasible to pass a suture through the periosteum at the posterior edge of the palate bones, and thus anchor the velum at the desired point. In three cases that have been done by the above method there has been no difficulty whatever in obtaining union throughout by first intention, this satisfactory result being due in large measure, apparently, to the entire lack of tension.

The three cases are, in brief, as follows:

CASE V. E. C., a boy of twelve years, who had a congenital cleft involving the soft palate and about half of the hard palate, was operated upon about four years ago, by the Langenbeck method. The velum is united, but there remains a cleft in the hard palate, about two centimetres long and one centimetre wide. The soft palate is thick, hard and very tense, and can be moved but little during efforts at correct speech, so that the voice is thick and nasal, although many of the defects are clearly due to faulty habits of articulation, and not at all to the condition of the palate. In considering the possibility of remedying the condition the question was asked: What would be done for this condition if it were elsewhere in the body. Obviously the greatest chance for relief lay in making lateral incisions, and bringing in flaps from each side. This was done in the manner described above and as soon as the sutures were in place it could be seen that much had been gained, as the velum instead of being tense was now perfectly lax, and was lying, of its own weight, back against the posterior pharyngeal wall. There has been some forward contraction during the process of healing, but the condition is far better than before, and with the aid of the measures that are now being employed to correct the defective habits of speech it is hoped that he may be given a good enunciation. Among other measures massage of the soft palate is being used to give it flexibility.

The result in this case leads the writer to think that in those cases where union has occurred after suture, but speech has remained unsatisfactory on account of the tenseness and shortness of the velum, much relief might be gained by a second operation of the kind just described. It is in this class of cases that the dentists

[10] J. Wolff: Archiv f. klin. Chir., 1886, xxxiii, s. 150.
[11] J. Wolff: Op. cit., s. 170.

have felt obliged, at times, to undo the work of the surgeon, by deliberately cutting open the palate again, in order that an appliance may be fitted. The depressing effects of such a procedure must be very great; and if such palates could be lengthened and rendered more flexible, this experience might be avoided and possibly the speech be rendered satisfactory.

Case VI. The patient was a girl of six, whose cleft included the soft palate and about one-third of the hard palate. The success of the lateral flap in the first case led to its use here also. The result was entirely satisfactory, the velum being carried well back into the pharynx, and the resulting slit in the palate being closed thoroughly by the flaps. About a week after the operation the suture nearest the bone was found to have cut out on one side. The patient was at once etherized and a second suture put in, a little deeper in the flaps. The patient was allowed to go to her home in the country at the expiration of three weeks, still wearing the sutures, and they were not removed until her return, ten weeks after the operation.

The retention of sutures for so long a time would have been looked upon as impossible in the early days of the operation; and one is led to wonder that union was ever obtained, when the first suture was removed on the third or even on the second day, none being left longer than a week. In the first of these three cases the sutures, which were, in all cases, of copper wire, silvered, were not removed until eight weeks after the operation, and in the third case the time was about five weeks. In no case was there the least disturbance that could be attributed to their presence. Probably the time allowed to elapse in these cases is unnecessarily long, and may result in more thickening than is needed, and in the future I shall remove them in from two to three weeks, in case union is assured.

Case VII. F. R., a boy, sixteen years old, had a cleft running from the uvula half-way through the bony palate. Some years ago he applied at a hospital to have the operation done, but was dissuaded, on the ground that the results were not satisfactory. The operation was identical with the last mentioned, and without incident. He remained in bed but a day or two, and soon left for his home in a suburb, coming into the city once or twice weekly, to report progress. His speech improved from the beginning, but more rapidly after the removal of the sutures, which sometimes slipped around and impeded the action of the tongue.

All the operations were performed in the semi-upright position, and with ether narcosis. No great amount of hemorrhage was met with when the incisions were made, slight pressure easily controlling it. An ordinary mouth-gag was used, the tongue-depressor being sometimes necessary. The wire sutures were pulled through the flaps by means of loops of silk thread attached to long-handled curved needles. Hot salt-solution was used as a mouth-wash, and the patients were encouraged to drink milk and to take as much as possible of other liquid and semi-liquid foods.

The bone left bare by the turning of the flaps became covered with swollen tissue and granulations within a few days, and gave no trouble whatever. A considerable fold of tissue is left in the middle of the roof of the mouth, and just how far this will be flattened down time alone can tell. I do not think it will be of any disadvantage, unless possibly in fitting an artificial denture.

Much might be written about the exercises, vocal and other, which should be employed after the operation. All those acts which require the closing off of the nasal space from the mouth are the most important. Among these are the blowing out of a candle by a strong puff of the breath; the blowing of a lead pencil or similar object forcibly from the lips, etc. In order to follow the improvement made by these patients, and with the idea that the defects in speech may be made known to the patient himself, and thus corrected more intelligently, I have taken phonographic records of the speech of each one before the operation, and at different times after. The value of this procedure will be determined only after a wider experience.

DISCUSSION.

Dr. H. A. Baker: It is not my purpose to come here to criticise a surgical operation on the palate, as perhaps most practitioners would who make appliances for the same effect. Of course, any one would say if an operation is a success in improving speech there would be no argument on the side of appliance; of course, it would be preferable to any appliance that could be inserted for that purpose. I know that this operation was done many years ago by eminent surgeons, and, of course, the cases that I have seen have been cases that have not been a success, because if they had been they would not have come to me; but I do not propose to discuss the merits or demerits of an operation, because many of you here are eminent surgeons, and operations may have come up that I am not familiar with. I saw three patients Dr. Smith operated on, and in one of them it seemed that there was a chance of a great deal of improvement. I do not know but that everything was done that could be done in that case. It was a child six years old. The child had habits to overcome aside from the deformity, and most of those cases do have habits in their speech, that is, hitching in speech. The idea is, that in imitating speech they imitate as well as they can, and in doing so they do not use their muscles correctly, because they have not the organs to use correctly; and in putting in an appliance or performing an operation, they have a great deal to learn and overcome to correct that speech. Whether that can be done is a question. As I said before, many cases have come to me for correction that have been operated on. Some of them have been a surgical success, that is, there would be an entire closure of the palate. In those cases we have to cut them open, and put in a certain appliance. Of course, if a surgeon operates and has not made a success of it, the patient is worse off than if no operation had been done. They must go through almost as severe an operation to undo the former operation as to have had it done in the first place.

As far as appliances being a success, there is no further question about that. That has been demonstrated time and time again; but, of course, an appliance is an objection. They have always got to wear an appliance if they once have one; and at the same time I find they are pretty willing to if they get any benefit from it.

## SOME OF THE SIMPLER TESTS FOR DETECTING ERRORS OF REFRACTION AND INSUFFICIENCIES OF THE OCULAR MUSCLES.[1]

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The importance of correcting ocular errors for the relief of headache and various other functional neuroses has been emphasized by many writers. In the last ten years numerous articles have been published, the titles of a few of which illustrate the direction in which the subject has been investigated.[2]

These articles treat of the relation of ocular defects

[1] Read before the Warren Club, Boston, February 5, 1895.
[2] See list at end of the article.

to headache, and the numerous cases reported prove conclusively that in many instances headache, vertigo, neuralgia and other nervous symptoms are due to some defect of the eyes.

As regards the percentage of headaches due to this cause, it is difficult to make even an approximate estimate; some of the writers referred to consider that eye strain produces more headaches than all other causes combined, and even the most conservative agree that it produces more than any other one cause.

In view of all that has been said and written on this subject, it might be expected that one of the first steps taken by a physician when meeting with these symptoms would be to examine the eyes, to determine whether there were any error of refraction or lack of balance of the ocular muscles. That such a course is the exception, and that an examination of the ocular condition, if undertaken at all, is often the last resort, may be due to the following reasons:

(1) There may be nothing to direct the physician's attention to the eyes. In many of these cases the sight is normal, or nearly so; the patient sees clearly, the eyes themselves may occasion him no discomfort; and he usually attributes his symptoms to some other cause, as to indigestion or overwork, for example.

The following case is an illustration. Dr. R. B., a dentist, thirty-eight years old, consulted me November 1, 1894, with this history: He has practised dentistry fifteen years, and has always been able to work and use his eyes with perfect comfort. On Sundays and holidays, however, when he does no work, he almost invariably suffers with headache, which becomes more severe as the day advances, and is often accompanied by nausea and vomiting. Otherwise, he has always been in good health. Recently he was examined by his brother, a physician, who found nothing to account for these attacks. The eyes were tested, and hypermetropia of 1.25 D. was discovered, for which correcting glasses were prescribed, to be worn constantly. Two months later he returned and reported that since wearing the glasses he had been entirely free from the headache and nausea with which he formerly suffered nearly every week.

(2) Should the physician suspect the existence of some ocular defect, in most cases he possesses neither the apparatus, nor sufficient familiarity with the methods employed, for making a positive diagnosis. The exhaustive articles on refraction in the text-books are more or less confusing, and to carry out their suggestions would necessitate procuring an equipment wholly incommensurate with the needs of the general practitioner.

Dr. Valk, one of the writers referred to at the outset, has appreciated the need of a ready test, adapted to the use of physicians in examining the eyes for purposes of diagnosis. He describes at length a method which, he claims, will meet every requirement. "Retinoscopy," he says, "is the name of this simple test." Referring to this, Dr. Swan Burnett, of Washington, remarks: "It (retinoscopy) has been called a simple test, and so it is; but, simple as it is, it cannot be mastered without painstaking care as to the smaller details, and considerable experience is necessary before it can be executed with the rapidity and certainty of which it is capable . . . and which are among its recommendations to the practitioner."

A few quotations from a recent article[3] by Dr. Edward Jackson, of Philadelphia, which furnishes an excellent description of retinoscopy, give an idea of some of the difficulties encountered in applying this test. "Retinoscopy . . . is a method of determining the refraction of the eye by observing the direction in which the light appears to move across the pupil, when the mirror by which light is thrown upon the eye in the dark room is rotated." After considering its use in myopia, hypermetropia and emmetropia, he describes its application in regular astigmatism: "The principles involved and the methods to be employed are essentially the same as in myopia or hypermetropia; but the refraction has to be determined in the principal meridians, instead of in any meridian indifferently, as it can be where all meridians are alike. . . . The direction of either of these principal meridians is revealed by the area of light in the pupil assuming the form of a more or less distinct band of light, extending across the pupil in the direction of this meridian, when its point of reversal is approached. When the band-like appearance is most noticeable, it is easy to cause its apparent movement from side to side; but it is more difficult to distinguish the movement in the direction of the length of the band. Still, this latter movement is the one especially to be watched and its reversal point to be determined."

The chief objections to retinoscopy as a test to be used by physicians generally for detecting ocular errors are —

(1) Its successful employment requires considerable experience.

(2) In the majority of cases the amount of error is small; and it is in these cases that retinoscopy is least reliable, even in the hands of an expert.

As retinoscopy presents these difficulties, and inasmuch as no simpler method is suggested in the article referred to, I will attempt to describe briefly some tests, which, without previous experience on the part of the physician, may be applied in practice for determining the existence of such ocular errors as may give rise to the nervous symptoms before mentioned.

The errors of refraction are, (*a*) astigmatism, (*b*) hypermetropia, (*c*) myopia.

The muscular insufficiencies are, (*d*) exophoria,[4] (*e*) esophoria, (*f*) hyperphoria.

The necessary apparatus[5] consists of test letters and an "astigmatic chart," two convex trial lenses (.50 D. and .75 D.), a candle, and a glass rod about the size of a pencil.

The test letters are placed twenty feet from the patient, and on a level with his eyes. The eyes should be examined *separately*, one being covered while the other is tested. If the card is in a good light and the eye is normal, the patient will see each letter distinctly. Ability to do this, however, does not exclude hypermetropia.

*Test for Hypermetropia.* — With the test card arranged as before, the eye to be examined is directed at the letters, and the trial lens .50 D. is held before it. If the patient sees the letters as distinctly with the lens as without it, there is hypermetropia of at

[3] De Schweinitz: Diseases of the Eye, Philadelphia, 1893.

[4] This classification of muscular insufficiencies is of comparatively recent date. The terms are defined by their originator, Dr. G. T. Stevens, as follows: "Esophoria, a tending of the visual lines inward; Exophoria, a tending of the visual lines outward; Hyperphoria, a tendency of the right or left visual line above its fellow." Funct. Nerv. Dis., p. 192, New York, 1887, G. T. Stevens, M.D., Ph.D.

[5] This apparatus may be obtained from any optician. At my suggestion, Messrs Miller and Welch, 39 West Street, have prepared some pocket cases containing the trial lenses and a suitable glass rod.

least .50 D. The .75 D. lens is then substituted for the .50 D. If the letters are still seen distinctly, the hypermetropia is at least .75 D.

These tests simply demonstrate the existence of hypermetropia. There may be latent hypermetropia which is not shown by these tests; but if the patient can read the letters through either trial lens, he is hypermetropic to that extent, at least.

*Test for Astigmatism.* — The astigmatic chart is substituted for the test letters and the eyes are examined *separately*, as before. The patient is directed to observe carefully the radiating lines on the chart. If the eye is normal, the lines all appear equally clear and distinct, and of a uniform shade. But if some appear black and distinct, while others are more or less blurred and indistinct, the eye is astigmatic. The other eye is then tested in the same manner.

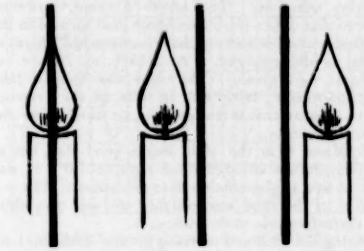


Fig. 1. Fig. 2. Fig. 3.

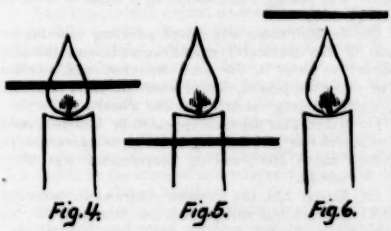


Fig. 4. Fig. 5. Fig. 6.

It may happen that none of the lines are seen distinctly at the given distance, twenty feet. In this case the card is gradually brought nearer to the patient until some of the lines are seen distinctly. If now some of the lines appear to be more distinct than others, the eye is astigmatic; but in this case there is either some additional error, or possibly some disease of the eye.

(Tests for myopia have been omitted for the following reasons: In this country simple myopia is much less prevalent than hypermetropia and astigmatism; patients who are myopic are usually aware that their eyesight is defective; and finally, myopia is far less productive of nervous symptoms than are hypermetropia and astigmatism.)

*Tests for Muscular Insufficiencies* (Maddox). — In these tests better results will be obtained if the room is partially darkened.

To test first the balance of the lateral muscles. A lighted candle is placed twenty feet from the patient, and on a level with his eyes. The patient's left eye being covered, he looks at the candle with his right eye. The glass rod is now held horizontally before this eye, whereupon a vertical line of light is seen in place of the candle flame. While the rod is held in this position before the right eye, the left eye is uncovered. The left eye now sees the candle flame, the right eye sees the line of light. If the line of light passes directly through the flame (Fig. 1), the lateral muscles balance. If the line is to the right of the flame, there is esophoria (Fig. 2). If the line is to the left of the flame, there is exophoria (Fig. 3).

To test for vertical deviation. The left eye is covered, and the rod is held vertically before the right eye. A horizontal line of light is now seen in place of the candle flame. The left eye is now uncovered and sees the flame, while the right eye sees the line of light. If there is no vertical deviation, the line of light will pass directly across the flame (Fig. 4). If the line is below the flame, there is right hyperphoria (Fig. 5). If the line is above the flame, there is left hyperphoria (Fig. 6).

In these tests of the muscular equilibrium, the degree of error is measured by the distance between the line of light and the candle flame. In any case it should be borne in mind, as Dr. DeSchweinitz remarks, that "an absolute balance of the external eye muscles is quite as rare as emmetropia, and hence small errors of the lateral muscles are often unimportant."

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## Clinical Department.

### A CASE OF LARYNGEAL DIPHTHERIA TREATED BY ANTITOXIN.[1]

BY F. B. LUND, M.D.,
*Surgeon to Out-Patients, Boston City Hospital.*

THE following case is of interest for three reasons, namely: the extent to which disease had progressed before the antitoxin treatment was begun, the large amount of antitoxin which was required before the symptoms began to subside, and the severity of the after-effects. To these may be added the fourth, the unfavorable nature of the patient's surroundings.

On March 13th I was requested by Dr. F. R. Tower to operate upon a case of laryngeal stenosis occurring in his practice as dispensary physician. The child had been first seen by Dr. Tower on March 7th, the parents informing him that he had had a cough for two or three days. There was no sore throat, and the child was thought to be suffering from a tracheitis or bronchitis of the larger bronchi. About March 11th, a membranous deposit had formed upon the tonsils, and a diagnosis of membranous croup was made. On March 12th, the child was restless and the respiration somewhat obstructed, retraction of the suprasternal notch being marked. On March 13th the nurse found the child sitting up in bed, with marked cyanosis, and obstruction to respiration. At 11.30 A. M., I found a boy three years old, well developed and nourished, in a critical condition from obstruction of the respiration. Intubation was performed with marked relief of dyspnea. The tonsils were found to be covered with discrete patches of a not very thick white membrane. On the right side of the neck were enlarged and softened glands, evidently tubercular, a sinus discharging a small amount of pus, and several scars.

At 3.50 P. M. 15 c. c. of Gibier's antitoxin (marked 1–80,000) was injected under the skin of the thigh. The temperature at that time was 102.4°, and the pulse 130. At 4 A. M. of March 14th, 10 c. c. of antitoxin were given. At 10 A. M. a culture was taken from the pharynx, which showed the presence of the bacilli of diphtheria. There was now but little obstruction to the respiration, but as the child had been able to take but little nourishment and stimulant during the night, rectal alimentation was begun. As the temperature at 4 P. M. was still high (102°) and there was no apparent change in the general or local condition, 25 c. c. of antitoxin were administered. During the night the temperature fell to 99.2°, but rose rapidly during the following morning till 10 A. M., when it was 103.4°. The child's general condition, however, was good. Considerable milk and whiskey was taken by mouth during the early morning; and on the 15th the child slept nearly all day, breathing quietly. The tube was coughed up at 3.45 P. M., and it was not necessary to replace it. During the night, however, the respiration gradually became obstructed, and the next morning, the 16th, it became necessary to replace the tube, as the child was becoming exhausted by its efforts to breathe. The tonsils and palate were swollen and red, but the membrane had nearly disappeared, only a few small shreds still remaining adherent. The severe dyspnea, however, showed that either fresh membrane had formed in the trachea, or that it had not become detached there, as it had in the pharynx. At 3.45 P. M., 25 c. c. of antitoxin were given. The child was able to take milk and whiskey fairly well in spite of the presence of the tube, so that it was possible to discontinue the nutrient enemata.

On March 17th the child had a good day, but as the temperature still remained high (101.5°), it was thought best to give another dose of antitoxin (25 c. c.). At 6 P. M. the tube was coughed up, and the child was thereafter able to do without it.

During the 18th and morning of the 19th the temperature gradually fell; but on the forenoon of the 19th an eruption resembling measles appeared on the face, neck and arms, with intense itching. The child refused to taste nourishment, and was very restless. The itching was relieved by a wash of carbolic acid (1–100).

On the 20th there was noted swelling and tenderness of the cervical lymphatic glands, and the skin about the sinus in the neck was red and swollen. The rash disappeared, except where the child scratched himself, bringing out urticaria-like wheals.

On March 21st the rash appeared in blotches, most marked on the face and legs. The temperature remained above 102°, and no nourishment was taken by the mouth.

On March 22d, the appetite returned in some degree; the rash was still present on this and the following day.

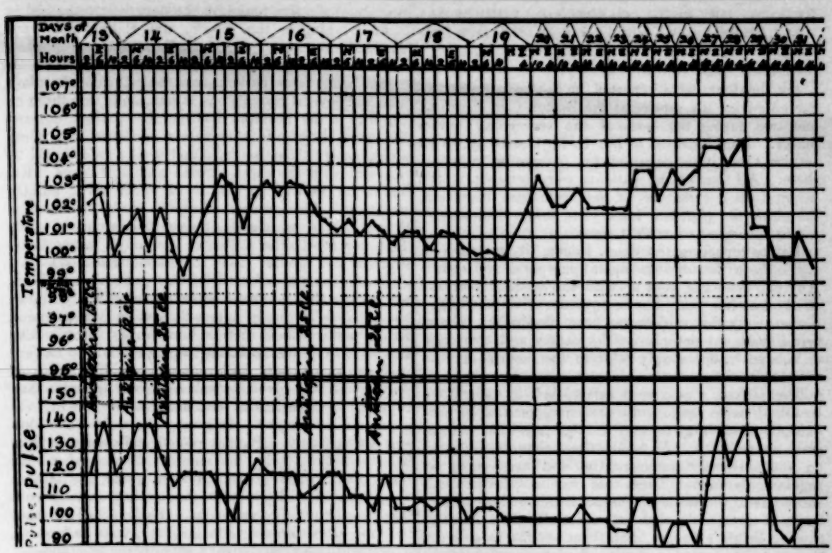
On March 24th the rash had nearly disappeared, but the child's temperature was still higher (over 103°); very little nourishment was taken, and the nutrient enemata were not retained.

On the 26th, the other conditions remaining about the same, the child was noticed to be passing very little urine. Examination of a specimen by Dr. Greene showed it to be free from albumin. Sweet spirits of nitre were given one-half drachm every four hours.

On March 27th the morning and evening temperatures were 104.8°, but the child took a little more milk.

On the 27th the evening temperature reached 105°, and the patient was covered all over with a rash, confluent over the body, and looking like scarlet fever. On the arms and face, however, the eruption was macular. Very little milk was taken, and the child was very weak, restless and uncomfortable.

[1] Read before the Clinical Section of the Suffolk District Medical Society, April 17, 1895.




On the following day the temperature had fallen to 101.2°. On the 30th and 31st the temperature continued to fall, and the child became fairly convalescent, taking plenty of milk and improving in every respect. A culture taken on the 26th showed that bacilli of diphtheria were still present in the throat.

This case, which cannot be considered to have been a hopeful one for the antitoxin treatment, which was begun on the eighth day of the disease, shows in the first place the necessity of continuing the administration of antitoxin until definite improvement is shown. After the child had received fifty grammes of the remedy and shown some temporary improvement, it became necessary to reinsert the tube and continue the administration of antitoxin. The appearance of the child at the time of this relapse was so bad as to seem to me almost hopeless.

The severity of the after-effects also deserves notice. In the reported cases where a rash has followed the antitoxin treatment three forms have been noted: (1) an urticarial form, which may be recurrent, and which was so in this case; (2) an erythematous rash resembling measles; (3) a confluent erythema, resembling scarlet fever. I have been able to find no reported instances in which all three forms occurred in the same case. In this case, however, all these forms certainly occurred at different periods. The child was so sick during these secondary symptoms, that if it had not been for the fact that no deaths had been reported from this cause, I should have almost despaired of his recovery.

The distinct period of incubation from five to seventeen days, which has always been noted between the administration of the serum and the appearance of these secondary symptoms, has led to the deduction as stated by Dr. Cyrus Edson,[3] "that the eruption is not due primarily and directly to anything contained in the serum, but to the action of the serum on the system of the patient, or perhaps to the development in the blood of the patient of some pathogenic substance through this action." Whether normal horse-serum, or serum from certain particular horses will produce these symptoms remains to be determined.

The recovery of this child, aside from the purely medical side of the treatment, is certainly due in a large measure to the untiring and enthusiastic devotion of the district nurse, Miss King, who was indefatigable in her attention to the case, and whose careful records form a larger part of the material for this report. We may form an estimate of the work required when we consider the length of time during which the child had to be supported by three-hourly nutrient enematas. The Instructive District Nursing Association also furnished a night nurse during the period in which the intubation tube was required; as they have done for me in previous cases where it was necessary to operate for laryngeal obstruction in district work. The faithful work done by the nurses of this association, and their readiness, in cases requiring special care, to undertake special work in addition to their already heavy duties, cannot be too highly praised.

[3] New York Medical Record, April 6, 1895.

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THE late David S. Ingalls, of Springville, New York, left an estate valued at over $600,000, most of which was bequeathed to charitable institutions. The will was hotly contested by two surviving sisters and a niece. One of the sisters was alleged to be of unsound mind. The contest has been "on" since early in 1893. The hospitals and other charitable legatees will receive about two-thirds of the estate, the contesting relations and counsel will get one-third, nearly. — *Journal of the American Medical Association.*

## REPORT OF FOUR CASES OF PUERPERAL ECLAMPSIA OCCURRING IN THE BOSTON CITY HOSPITAL.[1]

BY S. E. COURTNEY, M.D.

OF the four cases reported in this paper, two occurred during my service at the Boston City Hospital, and two during the term of the succeeding house-officer. I am indebted to Dr. C. M. Green, in whose service these cases occurred, for permission to report them. All four of the patients were brought to the hospital in a comatose or semi-comatose condition, therefore the previous history in some instances is not as accurate as I wish it were.

Before reporting the cases, I deem it necessary to say only a few words upon puerperal eclampsia. Any one who has kept up with the medical journals of the last few years knows how extensively and comprehensively this subject has been discussed. Therefore I shall not enter upon the causes and treatment of eclampsia, but simply refer to the theories and to some of its signs.

The phrase, "puerperal eclampsia" is understood by all of us to mean a disease characterized by convulsions which may or may not be followed by complete insensibility. As a rule, these convulsions come on suddenly and unexpectedly, and may recur at regular intervals. There are various theories advanced as to the cause of puerperal convulsions at any stage of gestation; such as acute Bright's disease, chronic Bright's disease, disturbance of the vaso-motor system, and more recently, toxines produced by special microbes acting upon the nervous system already prepared by the gravid state.

We know there are many instances in which eclampsia has occurred when there was no trace of albumin in the urine, either before or after convulsions; and in many cases it has been found *after*, but not before convulsions. Such cases are usually classed under nervous symptoms. In the chronic Bright's disease existing before pregnancy, it is not necessary to give an unfavorable prognosis, as many or, in fact, most all of these patients pass through the confinement without convulsions.

Almost all authorities consider albuminuria a grave condition and significant of danger, especially should this condition be accompanied by edema, nausea, vomiting, headache or nervous symptoms, and a knowledge of these signs is absolutely necessary in the care of patients during the pregnant state.

The chief interest in the cases I report, lies in the fact that upon the two who died, we were able to have an autopsy, and in the case of one of the two patients who recovered, a pathological examination of the placenta. In one of the cases the urine was examined for urea each day. This examination proved a most interesting record of the return of the urine to its normal state.

CASE I. M., primipara, single, about twenty-two years of age, was sent to the hospital October 31, 1893, with the following history:

"Three days ago patient began to complain of general pains, severe headache, followed by nausea and vomiting; but she kept up and about the house. The night before entrance, patient went to bed early, complaining of feeling sick. At 3 A. M., friends heard groans in patient's room. The door was broken open, and she was found on the floor beside the bed in a fit, frothing at the mouth, and rolling her eyes. Medical aid was summoned, diagnosis made of epilepsy, for which some pills were ordered."

Six hours later patient was sent to the hospital. She had several convulsions at her room, and three on the way to the hospital. When the patient entered the ward she was in a comatose condition, breathing stertorously; the pulse rapid and weak; râles could be heard all over the chest. Some edema of limbs. Examination showed patient to be about seven months pregnant. Two ounces of thick, smoky urine were drawn, which contained albumin .25 per cent., urea 1.21 per cent.; the sediment contained many fatty, granular and hyaline casts, some abnormal blood.

Dr. Green was informed of the patient's condition, and in less than an hour after entering the hospital, she was delivered by internal podalic version of a living child, which died a few hours later. The bowels moved freely during the operation. Patient was put in a hot-air bath; one-eighth of a grain of pilocarpine was given by subcutaneous injection and repeated in three hours; two drops of croton oil was given on the tongue. In a very short time the skin was acting freely. Patient rallied sufficiently to take brandy and milk by the mouth. Cream of tartar, water and acetate of potash were given *ad libitum*. Two hours after delivery the hot-air bath was discontinued, patient being conscious. Patient had six convulsions after entering the hospital; four before delivery, and two after delivery, ether being administered each time. Twelve hours after delivery the patient had a severe convulsion, out of which she never rallied.

The autopsy by Dr. Councilman showed fatty degeneration of the kidneys and liver, and edema of the lungs.

CASE II. R., married, twenty-two years of age, primipara entered the hospital at 7.40 P. M., December 31, 1893. Friends said patient had ten convulsions before she came to the hospital. Patient in a semi-comatose condition. Examination showed she was about seven and one-half months pregnant. There was some edema of the feet and face. Urine was scanty, smoky, and contained one-fourth per cent. of albumin. She was at once put in hot packs. Thirty grains each of chloral and bromide were given by the mouth, one-eighth of a grain of pilocarpine was given subcutaneously. An enema of suds and glycerine was given. At 9.15, labor pains having set in, Dr. Green completed dilatation, and delivered the patient by internal podalic version, of a still-born child. Patient was put in hot packs, given one-eighth of a grain of pilocarpine subcutaneously, and thirty grains each of chloral and bromide per rectum. Under the above treatment the skin and bowels acted freely. Patient had three convulsions before delivery and six after delivery, the last one at five in the morning. I remained with her all night, repeating the hot packs and administering ether when there were signs of convulsions. Patient was discharged well January 8th.

Examination of placenta by Dr. Councilman: The placenta is small; the surface covered with whitish, elevated nodules; many of these composed of necrotic tissue with a cavity containing more or less gelatinous-looking bloody fluid. Other areas present the appearance of hemorrhagic infarction.

[1] Read before the Obstetrical Section of the Suffolk District Medical Society, February 27, 1895.

Diagnosis: Anemic and hemorrhagic infarction of the placenta.

It is interesting to notice in this case, the amount of urea which was estimated each day.

At entrance the urine was:

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Smoky, specific gravity | 1.030, | albumin | ½, | urea | 1.39 |
| 2. | .... | " | 1.030, | " | ½, | " | 1.71 |
| 3. | .... | " | 1.025, | " | trace, | " | 2.02 |
| 4. | .... | " | 1.023, | " | trace, | " | 1.51 |
| 5. | .... | " | 1.023, | " | trace, | " | 2.30 |
| 8. | .... | " | 1.028, | " | trace, | " | 2.50 |
| Day of discharge | | | | | | " | 2.80 |

Case III. C., seventh pregnancy, thirty-eight years of age, married, eight months pregnant, entered the hospital July 31, 1894. The following history was obtained:

Fifteen days ago noticed feet, hands and face were swelling. The day before entrance she began to vomit, and had headache with pain in epigastrium. She said she vomited, off and on, for two hours. At 5 A. M. on the morning of entrance the first convulsion occurred. From that time until the time of entrance to hospital (11.30), she had had eleven convulsions. While being carried from the ambulance to the ward two others occurred.

The house-officer made a hurried examination, and at once put patient into hot packs, administering chloral and bromide, thirty grains each, per rectum. She was also given one-sixth of a grain of pilocarpine subcutaneously, a drop of croton oil on the tongue. Ether was administered during each convulsion, or at the signs of an approach of a convulsion. Patient not wholly unconscious at any time. After six convulsions she was found to be in labor, with the os fully dilated. The house-officer delivered the patient by internal podalic version of a dead child. The woman was replaced in the hot packs, and one-eighth of a grain of pilocarpine given subcutaneously. The bowels moved freely before the operation. Cream of tartar water and acetate of potash were given *ad libitum*. There was no convulsion after delivery, though it was found necessary to administer ether for the patient's restlessness.

Discharged well on December 25th. The urine on entrance showed one per cent. albumin, .76 urea, hyaline and granular casts, but no fat or blood.

Case IV. She entered hospital December 9, 1893, in a comatose condition; and no previous history could be obtained from friends. Examination showed edema of feet and some edema of face. The urine was small in amount and smoky; albumin, two and one-half per cent., urea 1.45; specific gravity 1.033; hyaline, granular and fatty casts, with abnormal blood. She had one convulsion after entering the hospital.

Dr. Green at once delivered the patient by manual dilatation and internal podalic version. She bled very freely from a marginal placenta previa. The child was dead. The woman was at once placed in hot packs. Stimulants were administered subcutaneously; two drops of croton oil placed upon the tongue, chloral and bromide administered per rectum; but in spite of all efforts the patient died seven hours later.

Autopsy showed severe laceration of the cervix with hemorrhage into broad ligament, splenic tumor, edema of lungs, double pleural effusion, pericardial effusion, edema of glottis, and fatty degeneration of liver and kidneys.

Bacteriological examination showed in the spleen, kidneys and lungs colonies of pneumococci.

Microscopic examination of a section of frozen kidney showed very little fat in the epithelium. Hyaline thrombi in the vessels of the glomeruli.

## A CASE OF ECLAMPSIA; DEATH.[1]

BY C. H. HARE, M.D.

Believing that bad results are fully as instructive to study as are successes, this case is presented for your judgment. With the fatal result to look back upon I can only wish that I had induced labor. Your severest criticism and instruction are invited.

Mrs. A., forty-three years old, came from a neurotic family. She had been, together with two sisters, a nervous sufferer all her life. Her own statement was that she was never well, and was rather worse after marriage. Twenty months after her first child, she was operated upon for lacerated cervix, and after that time wore a support for retroversion almost continuously. In February, 1893, she was curetted for an hyperplastic endometritis. She was married when twenty-one years old. There were no abortions.

The first child was born four years after marriage, and a second three years later. During the latter part of both these pregnancies there was marked swelling of all the extremities and of the face. Both pregnancies went to full term. Convulsions occurred in both soon after labor pains began, and both were terminated with forceps under chloroform anesthesia. No satisfactory opinion of the number of convulsions could be obtained but they were stated as "many." The patient was unconscious for one or two days after each delivery, and not expected to live at either time. The history of the first was rather more severe than that of the second, both before and during labor. The first child was a boy weighing seven and one-half pounds; the second a girl, weight not known. Both children lived.

The menstrual periods had never been regular, being inclined to be a week or two late, and the amount of flow was rather less than in the average woman. Menstruation continued up to the last pregnancy without change. Coitus had not occurred for five or six months until unfortunately it did occur on June 25th or 26th, about five or six days after cessation of the last flow. Pregnancy was recognized by the usual symptoms in the latter part of August, and the undesired condition was thereafter an added nervous burden.

I first saw her, in my turn amongst the series of her medical attendants, on November 16th. She had been in her room for two months, and in bed constantly for one month. There had been very troublesome vomiting. For two or three weeks liquids by the stomach had been retained about half the time, and no solids taken. Rectal alimentation had been given daily. She had lost considerable flesh. The bowels had not moved for weeks, except after enema. Vaginal examination showed a red and easily bleeding area about the os uteri. The urine was abundant, and showed nothing abnormal chemically or microscopically. There was no edema. She was ordered

[1] Read before the Section for Obstetrics and Diseases of Women of the Suffolk District Medical Society, February 27, 1895.

liquid food by mouth every three hours. Three drops each of dilute hydrochloric acid and tincture of nux vomica four times daily, after taking nourishment; podophyllin, one twentieth of a grain, four or five times daily. The cervix uteri was painted with tincture of iodine, but this was not repeated, as she complained of tasting it; but fluid extract of hydrastis was substituted, and applied three times a week up to ten or twelve times. She never vomited again, though nausea was troublesome and a sour stomach very annoying up to the time of her death. Enemata to move the bowels were used twice.

In a week or ten days the stomach bore carefully selected solid foods. She sat up, and soon began exercising a little in a large, airy, sunny room. I do not assume that this selection of drugs caused the improvement, but attribute it to chance and it was my good fortune to take charge of the case just at the time change and improvement began. Edema appeared in the early part of January in the feet and ankles, and later in the hands and face in the morning. The urine was examined every week; the quantity was large, being about four pints daily until about the middle of January, when the amount dropped to about two and a half pints, and albumin appeared. She was then given tincture of chloride of iron and infusion of digitalis; and the daily amount remained above three pints. The albumin gradually increased until it was one-fourth per cent. two days before death. A very few hyaline and granular casts were found in the urine about two weeks before her death, but their number did not seem to increase. Her danger was explained to the husband, and a consultation advised; but it was not desired, as she had been much better than in preceding pregnancies.

I was called early on February 4th, as she had been having pain sufficient to prevent sleep. Uterine contractions could be distinctly felt at short intervals, but only lasting a few seconds. The pain decreased in frequency during the day, ceased at night, and she had a good night's sleep. She was then seen daily; but her condition gave no increased anxiety until the morning of her death. Fetal movements were vigorous up to that morning. About two A. M. during her last night, there was an attack of pain in the abdomen, which she attributed to something eaten; and a physician a few doors from her was called and gave morphia subcutaneously with entire relief. I saw her soon after nine A. M. on the following day (February 9th). Her voice was thick and her mind confused. I went to a telephone about seven or eight minutes away, and Dr. C. M. Green kindly agreed to see her in about two hours. On my return to her she was unconscious. A messenger tried in vain by telephone to get any member of the Lying-in staff, but no one could be gotten. Before I had finished scrubbing my hands the first convulsion came. Chloroform was immediately given. I dilated, did version, and extracted a dead child after about half an hour of the hardest work I ever did. A second convulsion occurred just before delivery, and the woman died about ten minutes later. Large doses of tincture of digitalis, strychnia and brandy hypodermically, and heat externally, all failed to give the slightest benefit.

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Twenty-five per cent. of the Johns Hopkins Medical School students are now women.

# Medical Progress.

## RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.,

### INOCULABILITY OF CANCER.

Gratia and Lienaux[1] have attempted to produce carcinoma experimentally in dogs by inoculating the animals sometimes with small pieces of carcinomatous tissue, sometimes with the expressed fluid or scrapings. The result was wholly negative, whether connective-tissue, serous cavities, mammary-glands, lymph-glands, testes or veins. The experimenters concluded that the parasitic character of cancer is not shown conclusively; that direct or indirect contagion is also not shown, except perhaps where especial predisposition exists, for example, a person already affected with cancer; and that the etiology or pathogenesis is not known.

### AN ADDITION TO PRESENT METHODS OF CLOSING LARGE CONGENITAL FISSURES OF THE HARD PALATE.

Milton[2] reports a case of severe double hare-lip and cleft palate, in which he supports the theory of insufficient approximation as the chief factor in the production of the deformity by the following points: (1) the separation between the two halves of the bifid uvula largely exceeded the width of any possible undivided organ; (2) the upper teeth overlapped the under teeth laterally to the extent of three lines on either side; (3) the upper canines coincided when the jaws were closed with the first lower premolars; (4) the expansion of the alæ nasi was one and three-quarters times as great as in the normal child of the same stature; and (5) the alveolar process of the intermaxillary bone projected four lines beyond that of the lower jaw and lay two lines higher than those of the superior maxilla. Convinced that the deformity was due to insufficient approximation, the author grasped the two superior maxillæ with a strong pair of forceps shaped somewhat like lion forceps, and with very considerable pressure, exerted with great care, at once brought together the two maxillæ along the greater portion of the fissure, the only obstacle being the interposed septum nasi. The snout was then forced down to take up its position between the two maxillæ. The sides were held in their approximated position by a wire passed in the groove between the teeth and the gums and across from behind the last premolar on one side to the last on the other, and then tightened by twisting in front. The patient had no reaction after this operation, and wore the wire comfortably for thirty-eight days. The bones retained their new position after its removal, and a plastic operation of the soft parts easily completed the restoration.

The author feels justified only in expressing the following opinions on the strength of this one case:

(1) That in some cases of fissure of the hard palate, especially, perhaps, in those in which the fissure is complete, the non-approximation of the two maxillæ may be an important factor in the production of the gap.

(2) That in such cases the approximation of the

[1] Bull. de l'Acad. roy. de Med. Belgique, 1894, No. 8.
[2] Lancet, July 14, 1894; American Journal of Medical Sciences, December 1894, p. 718.

separated portions by forcible pressure may be possible. Such approximation is very simple in performance, is not likely to be harmful in its results, and may greatly facilitate the subsequent operation for complete union of the soft parts.

(3) It remains to be seen whether the forcible manipulation of the jaw is disadvantageous to its future development; and it may be that in some cases the approximation may entail so much deformity in the jaws as to greatly discount its advantages.

### LARYNGECTOMY BY A NEW METHOD.

Swain[3] referring to recently recorded cases in which, after removal of the larynx, the open end of the trachea was stitched to the skin, and the communication between the air passage and the mouth thus shut off, states that the results of such procedure have been better than those of the older method of laryngectomy. The danger to life from inspiration-pneumonia is much reduced by the shutting off of the mouth. The patients can swallow with the greatest ease. In three at least of the cases a voice useful, and fully as satisfactory as any produced by an artificial larynx, was obtained, and the patients were able to speak without incurring the trouble and risk of the constant presence of a foreign body in the neck. A recent case is reported in this paper, in which Carmatt, after total removal of the larynx for epithelioma, closed the large wound by continuous suture, except at one part of the middle line of the neck, to which the trachea, which two weeks before the operation had been opened for the relief of extreme dyspnea, was carefully stitched. The patient, a man aged forty-two, made a good recovery; and, when the last observation was made by the author, he was perfectly well and the wound was quite healed. Although words were not then clearly spoken, the author was able to understand short sentences, and single words very satisfactorily with his back turned, and at a distance of several feet from the patient. No clear explanation is given of the manner in which the capacity for speech has been preserved in this and other cases in which the communication between the lungs and the mouth was completely closed by this new method of laryngectomy.

### TREATMENT OF PULMONARY STAB-WOUND BY SUTURE.

Feliciani[4] reports a case where a wound of the lung was successfully sutured. The operation was performed on account of hemorrhage. The patient, a laborer, forty-three years old, was stabbed in the back with a knife. There were four penetrating wounds on the right side. The seventh rib was fractured. There was pneumothorax, with marked hemorrhage into the pleural cavity. The seventh rib was resected, and a wound of the lung three centimetres deep exposed. This was closed by three silk sutures which checked at once the profuse bleeding. The pleura was then washed out, and the wound in its parietal surface closed by suture, as was also the external wound in the skin. The patient left the operation-table in a pulseless condition, but was discharged well at the end of four weeks. The pulmonary suture apparently was effectual in controlling the hemorrhage and in shortening the period of treatment.

[3] New York Medical Journal, October 13, 1894; British Medical Journal, December 8, 1894, p. 90.
[4] Riforma med., 1894, x, 9.

### TUBERCULOSIS OF THE BREAST.

Charles A. Powers,[5] reports two examples of this affection, and speaks of the pathology, symptoms and course, diagnosis, treatment and prognosis of this rare affection. He summarizes as follows: The relative frequency of tuberculosis of the breast cannot be approximately estimated from present data. It may in general be considered of infrequent occurrence. Diagnosis must rest upon microscopic examination. Adequate treatment calls for the removal of the gland and the axillary contents. The prognosis, as regards local recurrence, is good. Where possible, local operative treatment should be supplemented by placing the patients under climatic and other conditions suited to the prevention and cure of tuberculosis in general.

### THE THOROUGH EXTIRPATION OF MAMMARY CANCER.

Halstead[6] is an advocate of a very thorough removal of parts adjacent to a cancerous breast when it is amputated. He lays down the following rule: The pectoralis major muscle, entire, or all except its clavicular portion, should be excised in every case of cancer of the breast, because the operator is enabled thereby to remove in one piece all the suspected tissues. The suspected tissues should be removed in one piece: first, lest the wound become infected by the division of tissues invaded by the disease or of lymphatic vessels containing cancer cells; and, secondly, because shreds or pieces of cancerous tissue might readily be overlooked in a piecemeal extirpation. Halstead claims excellent results. Seventy-six operations (complete and incomplete) for breast cancer have been performed in the Johns Hopkins Hospital, and not one death resulted from the operation. Twenty-six of the operations were incomplete. Of the fifty which were complete, local recurrence occurred only in three, or in six per cent, the lowest known record. The disability produced by the operation was, as a rule, slight.

### PYLOROPLASTY.

R. Shalders Miller[7] reports three pyloroplasties performed in England with a successful result. He states that the first was that of Mr. F. Page and Dr. Limont, done early in 1892, and the second that of Mr. Pearce Gould in December, 1892; and it is satisfactory to note that all three patients have not only survived the operation but have been completely relieved of their previous disability and suffering.

In the third instance the abdominal section was considerably longer than was needed for pyloroplasty, which, as the subjects for it must usually be thin, might be done with an incision of three inches and a half. It seemed needful to explore the abdomen extensively, as no disease about the pylorus could be found before making the visceral incision. The case appears to have been of a spasmodic nature, but the pyloric sphincter was certainly sharper and more prominent internally than normal, and its closure on the finger was notably sudden. Probably the same thing occurred when food approached it. The outer row of sutures in the gastro-duodenal wound were not according to Lembert, but were passed through the peritoneum and muscle about a quarter (or rather

[5] Annals of Surgery, August, 1894, p. 159.
[6] Johns Hopkins Hospital Reports, vol. iv, No. 6, 1894; British Medical Journal, December 29, 1894.
[7] Lancet, December 1, 1894, p. 1270.

less) of an inch from the cut edge, and were brought out on the one side and commenced on the other side of the cut just under the edge of the peritoneal coat. This was done so as not to interrupt the continuity of the longitudinal muscular fibres, which are pretty thick and close together at the pylorus; it was hoped thereby to secure the best possible peristalsis at the critical spot. Possibly the spastic condition found in this instance may explain some cases of actual hypertrophy of fibroid stricture, the constant irritability of the muscle leading to the hyperplasia as well as hypertrophy, especially if any inflammatory process supervened. In this patient the disease had not lasted long enough to cause more than slight overgrowth of the circular fibres of the pylorus.

### THE OPERATIVE TREATMENT OF DIAPHRAGMATIC HERNIÆ.

A Neumann, Berlin,[8] describes a fatal case of this variety of hernia. The patient was twenty-nine years old. The hernia was reduced on the ninth day by abdominal operation. In discussing the operative treatment of this rare lesion Neuber recommends that large hernia should be approached through the pleural rather than the abdominal cavity. He claims that no extra injury is done by this method, since the lung is already compressed, and that the diaphragmatic defect is more accessible in a majority of cases.

The writer divides these cases into three classes: (1) Those large herniæ with a large diaphragmatic defect, which allow entrance of abdominal viscera into the pleural cavity, with injury to the patient, and which are only discovered by chance. Here no operation is indicated. (2) Where the abdominal viscera encroach so much on the pleural space that both their functions are interfered with as well as those of the thoracic organs. (3) A small defect in which the hernia is strangulated or incarcerated.

### INTESTINAL SUTURE.

Ullmann[9] has adopted, in place of the Murphy button (which he considers sacrifices security for rapidity in operating), the Maunsell method for intestinal suture. He has concluded after experimental work on cadavers and living animals, that this method is rapid and efficient. The objections advanced against the method, namely, that there is only a single row of sutures, and that the mucous membrane is involved, are not actual objections. If the operator feels that the single row of sutures is insecure it can be easily and rapidly reinforced by a few serous sutures. That the mucous membrane is included in the suture has been proved unessential. Ullmann has modified the technique somewhat, in that previous to the invagination of the distal into the proximal end of the resected intestine four sutures are introduced, one at the mesenteric attachment, the other three ninety degrees apart. The ends of these are tied so that the knots are inside the intestines, and they hold the ends loosely together. After the longitudinal incision is made in the proximal end, a pair of forceps introduced through it seizes these sutures, and as they are withdrawn drags after them the sutures and intestinal edges which the sutures transfix. These sutures, Ullmann claims, are an assistance in forming the temporary intussusception which permits the suture to be placed. They can be afterwards used for permanent sutures. He reports one case where a resection operation in a woman was quite successful and satisfactory.

[8] Deutsche med. Woch., 1894, xx, 33.
[9] Centbl. f. Clin., 1895, Bd. xxii, 33.

### COMPLETE CLOSURE OF ISOLATED PORTIONS OF THE INTESTINE.

P. Reichel[10] objects to Obalinski's recommendation to close completely portions of intestine isolated by intestinal resection or anastomotic operations.[11] The article is an interesting one, but too long to report more than its essential points. The results of animal experiments are unsatisfactory, namely, death from peritonitis; or, if this danger is survived, death later from the distention of the occluded portion, and ulceration of the mucous membrane. Only a few animals ultimately survived. The danger is from retained secretions in the occluded portion of the intestine. Reichel discusses the seven cases of this operation in the human subject on record, and states that such complete isolation in the large intestine is safer than in the small since its function is absorption rather than secretion of intestinal fluids. In the small intestine, especially in its upper part, the secretions are abundant, and would soon dangerously distend an isolated loop of gut. The writer recommends that both ends of an isolated portion of small intestine should be sewn in the abdominal wound so as to allow an opportunity for fluid to escape, according to the Hochenegg and Frank method. If these fluids are small in amount, the fistulæ cause no especial inconvenience.

*(To be continued.)*

[10] Centbl. f. Chir., 1895, Bd. xxii, 37.
[11] Ibid, 1894, Bd. xxi, 37.

## Reports of Societies.

### SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

JAMES M. JACKSON, M.D., SECRETARY.

REGULAR Meeting, Wednesday, February 27, 1895, DR. GEO. H. WASHBURN in the chair.

DR. C. G. CUMSTON reported

A CASE OF OSTEOMALACIA: OPERATION, RECOVERY.

DR. S. E. COURTNEY presented a report of

FOUR CASES OF ECLAMPSIA OCCURRING AT BOSTON CITY HOSPITAL.[1]

DR. C. H. HARE also reported

A CASE OF ECLAMPSIA AND DEATH.[2]

DR. A. D. SINCLAIR: I have very little to say on this subject. We have no more formidable state of things to meet than a case of eclampsia in a pregnant woman. It was my misfortune to meet with more of them at one time than seem to occur nowadays, I think attributable to the care taken by the rising generation of physicians, who know better about these things, seeing to the general condition of the patient, especially her kidneys. At one time in this city it seemed to me that puerperal convulsions were more common than now, perhaps seemingly so; at any rate I know they were more fatal than now, because the means for treat-

[1] See page 486 of the Journal.
[2] See page 487 of the Journal.

ment were limited, and consisted largely in bleeding and opiates — not bad treatment by any means, certainly not very successful, although persisted in I think to-day by a great many who believe in bleeding as being one of the most powerful agents in reducing arterial pressure in many cases dependent on uremic trouble. We did not know much about the pathology of these cases. I do not know as we know much now; at any rate, we knew less then. Resort to delivery in any case unless the mouth of the womb was open and the head or some portion protruding was not had, because it was contrary to all teachings — was meddlesome midwifery. There was a certain autocracy that prevailed over the young men, especially by the older, and nothing was done that would not be approved in higher quarters. We do not hear much of that to-day.

I was house-officer in the Lying-in Hospital at Edinburgh in 1857–58; and there was brought in a woman in convulsions in the eighth month of her pregnancy. She was given chloroform, but she died undelivered. There was no thought of delivering that woman, although after her death it was with difficulty that the child could be kept in the womb; and I thought, why should not that woman be delivered, at least, the womb be emptied and give the woman a chance to recover. It was thought that it was meddlesome midwifery. But the thought came to me that, if a similar case presented itself to me, I should empty the womb. A case did occur. I delivered by manual dilatation, and continued to do so when a case of the kind came up, I think saving my patient in one or two cases, and in one or two losing the child. I did this privately ten or twelve years, until twenty-five years ago I delivered a woman who had been in convulsions for several hours, with little or no secretion from the kidneys, in one and a quarter hours by manual dilatation without a convulsion during the manipulation; under ether, the woman was delivered without leaving a single trace of tear, the child born alive and still living, and the woman had several children afterwards. That case was detailed before the Boston Society for Medical Improvement, January 18, 1870. The Medical Improvement Society was perhaps the most conservative body of medical men in this land, and I cannot say that my plan of delivery was received with the utmost warmth or welcome. But I did not care very much about that. I felt that it was a plan that was useful, and a thing come to stay. It has saved some lives in this community.

In regard to bringing about labor in one or two cases of convulsions in early pregnancy, say the fifth month, I had such a case where blindness came on, and evidently a bad state of things was threatening; there I delivered at the fifth month with perfect recovery. I think that we are very apt to delay in those cases, rather than to go to work at once; and I have seen cases where that thing was impressed upon me very strongly. I was called to Dedham a good many years ago to the case of a young woman in the eighth month of her first pregnancy, in convulsions. I said to the physician in charge that I did not think any temporizing would be of service, and I would advise immediate delivery. Said he, "If the woman should die, we should be accused of killing her." Twenty-four hours later I was again sent for and delivered her. She had had twenty-seven fits meanwhile; and she died nine hours later, as also the child.

I will say this to the younger men here, that manual dilatation is a very simple thing. It is too simple; and I believe that Dr. Lusk, when asked why he did not put it in his book, said he did not dare to, it was so easy and men would be doing it recklessly. It must be done with deliberation and care. I have seen very good men in Boston tear the uterus. It can be done with a great deal of safety. It is called forced delivery, and so it is in a way — but not a bit more force than natural pains would give, however.

Dr. Call: I do not know that I can say anything new. My experience at the New England Hospital at the maternity department has given me some cases. We do not have as many cases now as when the hospital was in the city. I remember when I was a student there, it was not very infrequent to have a woman brought in comatose, having had convulsions outside. Now that the hospital is quite a distance from the centre of the city, we seldom get those cases, and for three years there has been no case. I think the treatment is almost exactly like that detailed by the gentlemen to-night, — hot packs, bromide and chloral per rectum, and ether during the symptoms of convulsion. I think that we have not lost a case there with convulsions now for six years, but, as I did not look up the records, I cannot tell how many cases we have had in that time. A point that I would like to ask about, is the length of time after delivery that we must fear convulsions provided we get a patient who has albuminuria safely delivered without an attack. My attention was drawn to that by a private case, because I have heard it said by physicians of experience that if twenty-four hours elapse after delivery without convulsions, you may feel that the patient is safe from convulsions. I was called to see this patient about three weeks before the normal time of her delivery, and found her with extensive edema of the face and extremities; and as she was a woman among the working classes who could not command skilled nursing, I advised removal to the hospital, but they were not willing to act at once, and within forty-eight hours I was called, and found she had been delivered with one pain. She appeared to be doing very well. I congratulated myself that she had gotten through. For twenty-four hours she did very well, but about the end of that time she complained of pain in the back of the neck and shoulders. She thought she took cold from lying on the floor after labor, and had no symptoms such as we usually look for in cases with convulsions; but twenty-four hours later, forty-eight hours after delivery, she was found unconscious; for twenty-four hours had convulsions at intervals; and for several days was partially comatose, although she eventually recovered and had a child afterwards without any trouble.

Dr. Sinclair: In answer to the question about the lateness at which convulsions may come on, I have only a single case. A woman was confined, and I was called to her I think two or three days afterward, when she went into convulsions; and the convulsions kept recurring; and, finally, I kept the woman under ether continuously, did not let her wake up for something like nine hours. I gave her also a large dose of calomel and jalap, had an excellent evacuation of the bowels; she recovered after a long time, to have, I believe, some pelvic peritonitis which kept her in bed for weeks.

Dr. Cushing: I would like to ask the reader in regard to the use of morphine. I do not think I

heard it mentioned whether it is entirely out of fashion in the hospitals here. It is quite largely used in different parts of the country. By those who use it it is thought to be very efficacious, used in conjunction with chloral. At the time when I was in Bellevue Hospital it was found out quite accidentally that morphine used hypodermically was a very satisfactory treatment of uremic coma — the last thing one would expect. It was found out by one of the house staff, who gave it for some reason; and it set the patient in a very profuse perspiration, and quieted spasmodic symptoms. After that it was used a great deal. I have known that it is used by a good many and with a good deal of success, not, however, to the exclusion of chloral or ether.

DR. CUMSTON: Dr. Sinclair, in speaking of the dilatation of the cervix, I believe referred to manual dilatation. In speaking of the instrumental dilatation there has been recently invented by Tarnier a very good instrument, which he has been using for the last three years at the Maternity in Paris, and which I think now is quite largely used in France and has been used in New York. It is described in many of the new French treatises on obstetrics. It consists of three blades about as long as forceps; and the end of the blade that is introduced into the uterus is bent at right-angles. You push it beyond the internal os, and you introduce each blade separately; they all join together like forceps and over the ends which are outside you pass a very large strong piece of elastic band. Little by little the elastic contracts and dilates the cervix without laceration. You can obtain full dilatation in about an hour or an hour and a half. It is a very safe method.

DR. HOGNER: One speaker asked how long after delivery convulsions may come on. We must remember that eclampsia or cramps depend on many different causes. One of these is infection by the tetanus bacillus, and such an infection can be established in every suppurating wound. We must also remember the possibility of such an infection during convalescence.

DR. TWOMBLY: The cases to-night have been instructive. There are never too many cases of this kind reported. I remember when I was in Karl Braun's clinic I waited nearly a year before I was summoned to one and then did not see the convulsion at all. In my own practice since then, I have met with it several times. Each case must be considered by itself. The consensus of opinion in these days is for immediate delivery. The risk to the woman by letting her have convulsion after convulsion is very great, and we do not diminish the chances of risk to the child. In fact, the child is of secondary importance to us; the mother's life is of the first and greatest. At nearly full term I think we all would consider immediate delivery the best method of procedure. Where the child is just at the viable stage it is a serious question whether to wait and hope that the best will come without immediate delivery; or to proceed with forced delivery with the chances of losing the child. Even in that case I believe it is better to deliver immediately rather than to run the risk of losing the mother. We cannot tell how many convulsions or how few will terminate her life.

There are many different symptoms of eclampsia, and the principal ones we know very well. In a case of mine there were a few I would like to mention, as perhaps not always seen. A young woman of twenty-six in her second pregnancy two months before delivery had what was supposed to be a partial paralytic stroke. The sister described her to me as a woman in perfect health who fell suddenly on the floor but had no fit. After recovering consciousness she spoke thickly, with the tongue protruding to the right and that side of the face partially paralyzed. She could mumble words, but could not formulate ideas. This passed off in two or three days. Two days before full term I was sent for in great haste, as she had been vomiting all night and had intense headache. I found every symptom of eclampsia present except the convulsion, and that we could expect at any minute. There was one noticeable thing beside intense blinding light before the eyes; it was twitching of the abdomen from the navel crosswise nearly twenty times a minute; the navel would go to the left with a twitch, and this continued until the convulsion occurred and then stopped. I immediately sent for an assistant, and without waiting any time at all performed internal podalic version and delivered the child, and she made a complete recovery. I think Dr. Hare will agree with me that it is the best plan in these cases not to delay, but immediately proceed, even if we have ignorant people call down unkind things upon our head. The question came up at the time I delivered this woman whether it would not have been better to put on forceps and deliver the child rather than to perform internal version. I remember Dr. Worcester had a case in which he put on forceps and delivered the woman all right, and the woman died in a few hours, and no apparent reason could be found. It seems to me the head being high up the risk of lacerating the soft parts and further complicating the case would be a sufficient cause for not using the high forceps. I have no doubt it is done successfully in some cases, but version is preferable I think.

DR. WHITE: My experience in puerperal eclampsia has not been great. I have seen in the past two or three years three or four cases. One was an Italian, a primipara. I was called to see her three or four days before delivery. There was considerable edema about the feet and ankles. I found a slight trace of albumin in the urine, and treated her in the usual way with milk diet, bromides, etc., and in a few days I was called to deliver her. I staid some three or four hours, and labor seemed to be going on in a normal way, and when the head was engaged a convulsion came on. I gave ether, and delivered rapidly with forceps. She came out of the ether very well, had convulsions continuously for three days, and finally recovered after quite a long illness; but the child died on the third day in convulsions. Whether the tetanus bacillus was there I do not know. Another case I saw in consultation in Winthrop. She had had a number of convulsions, feet considerably swollen, labia very much swollen. She had been in labor some hours. I could find no signs of life of the child. I applied forceps, and to my surprise delivered the head without the rest of the fetus. After working for some hours I got the arm down. The contractions were firm, and I could not turn the child. I delivered the arm. After working some time I got the other arm and delivered that, and finally I got a traction hook, put it into the anus of the fetus and delivered the remaining portion, and then had to scrape the placenta off with my hands. Soon after coming out of the ether the woman had a

convulsion; and three or four convulsions followed in rapid succession; and the patient died. Another case, a primipara, had considerable edema about the face and feet; labor went on normally; convulsions rather severe; administered ether; delivered; and she recovered and the child lived.

DR. J. B. BLAKE: I etherized a patient in the practice of an older physician, about a year ago. The case presented two points of interest: (1) no premonitory symptoms except extreme pain referred to the epigastrium; (2) marked difficulty in dilating the cervix. The woman was a healthy primipara, seven months pregnant. Morphia, subcutaneously, did not affect the pain. Under ether it was found impossible to dilate the cervix by the fingers, and a uterine dilator was resorted to. The internal os was like India-rubber, and the fetus was delivered in much the same way described by Dr. White — first a leg, then an arm, etc. Finally, after seven hours' work, the entire fetus and placenta were removed. The woman did not fully recover consciousness, in spite of free stimulation, had two or more post-partem convulsions, and died in about twenty-four hours.

DR. CUMSTON: There is one symptom which is a prodrome of albuminuria, namely, what the French call the "doigt mort," numbness of the index finger when the patient wakes up, which may remain an hour or two.

DR. SINCLAIR: I think pain in the epigastrium is a remarkable symptom and it has occurred in many instances.

## AMERICAN MEDICAL ASSOCIATION.

FORTY-SIXTH ANNUAL MEETING, BALTIMORE, MD., MAY 7–10, 1895.

### GENERAL SESSION. — FIRST DAY.

The Forty-Sixth Annual Meeting of the American Medical Association held at Baltimore, Md., was called to order at 10 A. M. on Tuesday, May 7, 1895, by the President of the Association, DONALD MACLEAN, M.D., of Michigan.

The meeting was opened with a brief but impressive prayer by the Rt. Rev. William Paret, D.D., Bishop of Maryland.

### ADDRESS OF WELCOME.

Owing to the absence of Governor Frank Brown, of Maryland, the opening address was delivered by F. C. LATROBE, Mayor of Baltimore, who thanked the members for the compliment they had paid Baltimore in selecting that city for the place of their present meeting, and called attention to the fact that although physicians and lawyers are often slandered and called necessary evils, yet among the men who have won honor and national fame there is no class more numerous than from medicine and law.

The address was closed by extending a hearty and sincere invitation to the members to visit the City Hall of Baltimore.

As chairman of the Reception Committee, DR. SAMUEL C. CHEW welcomed the members present, and stated that great changes had taken place in the Association and in medical science since their last meeting held at Baltimore twenty-eight years ago. At that time Baltimore was a city of two hundred and fifty thousand inhabitants, while to-day it contains over half a million. A far more important change than increase in population is found in the fact that this city has become one of the chief centres of medical education, and attracts about one thousand students here every year. Since our last meeting in this city one of the greatest advances made in medicine is the elevation of the standard of medical education which has been effected in late years, and which is being raised higher and higher. Many are now entering our ranks equipped by a science which not long ago was in a great degree unknown, making them better qualified for our profession.

DR. WILLIAM OSLER, Vice-Chairman, in making announcements from the Committee of Arrangements, called attention to the objectionable advertisements inserted in the Guide-book presented to each member at the registration office, stating that had this book been first submitted to the majority of the committee a most vigorous protest would have been made against said advertisements.

### PRESIDENT'S ADDRESS.

At the opening of his address DONALD MACLEAN, M.D., of Michigan, stated that it was his earnest wish that the present meeting might be greater and productive of more good than any of its predecessors.

Regarding the present tendency of many of our medical colleges to raise the standard of medical education, he spoke as follows:

I should be untrue to my oft-reiterated convictions if I hesitated to mention here one cause of complaint still justly chargeable to a considerable number of our American medical colleges. It is summed up briefly but truthfully as follows: Some of these institutions claim to supply to their alumni complete courses and means of instruction. The fact is, that one-half of them are shamefully deficient in clinical resources and facilities, while the other half are no less devoid of the men and the means necessary to do anything approaching to justice in teaching fundamental branches, without which a reliable and intelligent knowledge of surgery and the practice of medicine is an impossibility.

In the rapid evolution and growth noted in medical education it has seemed to those most closely concerned that the time has arrived when a united and determined effort might be made to establish a well-defined plan which would secure uniform co-operation in remodelling the whole system of medical graduation, thus securing for the various designations of "doctor," "surgeon," "physician," etc., an intelligible and definite signification. This, in my opinion, is "a consummation devoutly to be wished."

Upon the importance of a National Bureau of Health, he said that such a bureau superintended by a competent medical authority, who shall be a member of the Cabinet, could not fail to secure for the nation benefits beyond the language of dollars and cents to express. A united and dignified effort on the part of this Association and its allies ought to secure this enactment. The vast importance of such an act is obvious to the members of this Association; and our imperative duty, as it seems to me, is to impress the active and public-spirited statesmen who guide and control the affairs of the nation with the essential truth and value of our views. The very respectable problems of foreign policy which have in recent times engaged the attention and elicited the energies of our

law-makers seem to sink into insignificance in comparison with the great and benign proposition here presented.

It is my deliberate opinion that the establishment of a bureau of health, as an integral part of the nation's executive, will prove an effective instrument in promoting public welfare. It will be the means of unifying efforts in the suppression of dangerous diseases. It will afford opportunity for restraining the effete despotisms of the old world from adulterating our population with the vicious and degenerate. It will be the means whereby this enlightened and progressive republic may exemplify to the world the true mission of medical science. It will offer another agency for disseminating the truths of scientific discovery; another means of discriminating between that which is transitory and accidental in medical achievement and that which is permanent and immutable, and will furnish another promise that medicine in the future shall in no wise be unworthy of her past traditions.

The party, professional or political, which shall succeed in consummating this wise measure will assuredly earn for itself the gratitude and applause of an appreciative nation.

On motion of Dr. Gihon, of Washington, the portion of the address referring to the establishment of a National Health Bureau was referred to the proper authorities at Washington.

### OBJECTIONABLE ADVERTISEMENTS.

A communication from the judicial committee regarding the advertisements appearing in the Medical Association *Journal* caused a lively but confused discussion.

Dr. Kohn moved that a committee be appointed to confer with the trustees upon this subject. This motion was objected to as reflecting upon the trustees.

Dr. Ingalls, of Chicago, one of the trustees, moved that a committee be appointed to meet the trustees and take part in the preparation of the report to be presented by the trustees; but, on motion of Dr. Cochrane, of Alabama, Dr. Ingalls's motion was laid on the table by a vote of 138 to 108.

### PAY OF NAVAL MEDICAL OFFICERS.

Dr. Millard, of St. Paul, moved that a memorial be presented to the President and Members of the Fifty-fourth Congress requesting the enaction of such legislation as shall confer upon the officers of the navy medical corps the same status, pay and emoluments as are now accorded to the medical officers of the army. This resolution was unanimously carried.

### PRESCRIBING PROPRIETARY MEDICINES.

A motion of Dr. O'Connor, of Detroit, for the appointment of a committee of three authorized to find out how many members of the Association prescribed proprietary medicines, provoked considerable wrangling.

Dr. Ferguson, of Troy, N. Y., said the question of proprietary and secret medicines should be kept clearly divided; and on his motion, that of Dr. O'Connor was laid upon the table.

### GENERAL SESSION. — SECOND DAY.

After the reading of the minutes, Dr. A. L. Gihon read a report as chairman of the Committee on the

### RUSH MONUMENT FUND,

and deplored the fact that it reflected disgrace upon the Association that sufficient funds had not been subscribed years ago.

He was willing to still take the lead in this matter; but if they wished him to do so, they must subscribe sufficient funds at once. He had thought it necessary to raise at least $25,000; but after Dr. Wyeth, of New York, exhibited a photograph of the Sims Monument, erected in that city at a cost of $10,000 for the statue and $3,000 for the pedestal, Dr. Gihon asked for the raising of that sum, and he would see if they could not get a monument similar to that to Dr. Sims. He then appealed to the members present, and asked for one hundred men to subscribe one hundred dollars each or guarantee the collection of that sum. In response to this appeal over $2,000 were subscribed in a very few minutes, and, on motion, a resolution was adopted appointing each delegate a collector for the fund in his particular section.

After the reading of the Secretary's Report, a communication from Hot Springs, Ark., was read inviting the Association to hold its next meeting at that place. The communication was referred to the committee. This was followed by the reading of the Treasurer's Report, which was adopted as read.

A resolution that a Section on Orthopedics is inexpedient at the present time, was read and adopted.

A communication from State Section on Medicine, asking the Association to appoint a committee to go to Washington for the purpose of having a National Bureau formed and that the sum of $1,000 be appropriated to defray expenses, was read. On motion, this was accepted, and the portion referring to the appropriation was referred to the trustees.

A resolution was read protesting against the registration of any member of the Cleveland Medical Society at this meeting owing to that society admitting to membership and retaining others who were known as quacks or assistants to such, and by so doing tending to degrade the entire medical profession. This resolution was referred to the proper committee with a request for a prompt report.

A resolution by Dr. Wilson was read and unanimously adopted requesting the medical colleges of the entire country to make a four-year course compulsory for the obtaining of the degree of M.D.

The Address on Medicine was read by William E. Quine, of Illinois. Its title was

### MALARIAL DISORDERS IN LARGE CITIES, WITH ESPECIAL REFERENCE TO CHICAGO.

In this paper he called attention to the habit of some physicians designating by the term malaria many ailments of which they were unable to make any satisfactory diagnosis, as the easiest way out of the difficulty. Also, where a patient was suffering with malaria, the questions were asked as to whether there was any building going on in their neighborhood or turning over of soil; and, if so, the conclusion was jumped at that this was the source of their disease. Cases where no building was going on, nor soil disturbed were asked if they had been out of the city anywhere, and, if so, even though it was as long ago as two years, then, of course, that was the source of their infection. In case neither of the foregoing sources could be elicited, then the soil in their neigh-

borhood was giving off this poisonous effluvium. Thus malaria was theoretically existing in Chicago during the winter months, when the soil was frozen to a considerable depth, and upon top of this a considerable layer of frozen snow, the temperature below zero for months, and all building operations and excavations necessarily suspended; and during this time they had outbreaks of malaria. Did these same physicians claim that the soil, under these conditions, was able to give off this poison?

As to making the diagnosis, he used to think it a comparatively easy matter, but now he does not think it can be done upon the basis of external phenomena alone. That malaria exists in all large cities he had no doubt; but in cities he thought a reliable diagnosis could only be made by aid of the microscope.

The source of the disease was not always easy to determine; but that it could be conveyed through the medium of drinking water where the source of this water-supply was across marshy districts, he did not doubt. This had been demonstrated in the water-supply of Brooklyn, and in all probability the same applied to Chicago.

As to the type of the disease, many patients were cinchonized for a time and then died with their blood teeming with the germs, which demonstrated to his satisfaction that many varieties of germs had been classified under one head.

As to how long the infection lasted, we do not know. In some the germs will linger indefinitely, while in others they can be found in abundance one day, and within a few days they will disappear entirely.

The length of the incubation period is absolutely unknown at the present time.

### GENERAL SESSION. — THIRD DAY.

The resolution of the preceding day referring to the Cleveland Medical Society was referred to the Ohio State Society, the registration of said members suspended, and the money received from any member of the Cleveland Society who had already registered was ordered refunded.

Charges against a St. Louis physician were not allowed to come before the Association.

The report of the Board of Trustees was now read, showing the Association to be on a sound financial standing. It called for more frequent illustrations in the Association *Journal*.

Regarding the objectionable advertisements inserted in the *Journal*, no advertisement of a secret remedy had been published during the last year unless a formula of the same was sent to the *Journal*. The trustees now instructed the *Journal* to admit no advertisements of secret remedies unless the formula of the same was inserted as part of the advertisement. This report was accepted with great applause.

Dr. Cohen, of Philadelphia, congratulated the trustees upon their decision, and claimed that now every American medical journal would necessarily be obliged to clear its pages of such advertisements, and the profession as a whole was to be congratulated.

### ADDRESS ON SURGERY.

This address was read by C. A. Wheaton, M.D., of Minnesota.

The tendency of the present day is to relegate all surgical operations to the specialist. To be a specialist, however, a physician must have had a long successful career as a general practitioner, such as would raise him above the mediocre; for a surgeon who is not such a physician, is like a bird with one wing. With this prerequisite medical knowledge a patient is spared days and weeks of post-operative sufferings which otherwise would ensue.

Dr. Wheaton deplored the tendency to use the female pelvis as a field of adventure for the rising young surgeon, and believed soon the removal of a cystic ovary, or a Fallopian tube because it contained pus, would be an operation of the past, and that plastic methods would take its place.

At present the pelvis of man appears to be *his* source of danger; the operation of castration is strongly advocated for the relief or cure of enlarged prostate. Why the removal of the testicles should effect a cure in this disease we do not know; that it does cure we have ample proof. However, from time immemorial man has been unwilling to part with this part of anatomy; and for this reason, if for no other, the operation will never become popular. Cold abscesses causing no discomfort should not be opened.

A resolution was offered, increasing the annual dues one dollar, for the purpose of establishing a building fund to erect a permanent home for the Association and a home for old or disabled physicians. The resolution empowered the President to appoint a committee consisting of one prominent member from each State represented in the Association, whose duty it should be to solicit subscriptions for this fund and act as an advisory board to the trustees regarding the investment of the same. One-third of the committee were to be appointed to serve one, two and three years respectively, and their successors appointed for the term of three years. This committee was to report at each annual meeting the amount collected. After considerable discussion, on motion, the resolution was referred to the Business Committee.

A motion to amend the By-laws and Code of Ethics, so far as to allow the patenting of surgical instruments, provoked a very heated discussion, in which ex-President Davis of Chicago took a decided stand against tampering with the Constitution, and claimed no surgeon was faithful to the profession who would not freely give to it any discovery which he might make, and moved that the resolution be postponed indefinitely. As a substitute for Dr. Davis's motion, a resolution was offered and unanimously accepted, that any resolution having for its object the altering or amendment of the Constitution or By-laws, in any shape or manner, should not be acted upon at the meeting at which it was presented, but must be laid over until the next annual meeting. That this resolution acted as a boomerang will be seen further on.

### THE REPORT OF THE COMMITTEE ON ESTABLISHING A NATIONAL DEPARTMENT OF PUBLIC HEALTH

was read. The lack of time and want of funds had retarded the work of the committee. During December, some of the members living in Washington appealed to members of Congress, who promised consideration of the subject when the proper time should arrive; but all agreed that nothing could be done during the continuance of the Fifty-third Congress. Much vigorous work will be required, and it will be absolutely necessary for the Association to place at the disposal of the committee an adequate amount of money to defray current expenses.

A motion was made to accept this report and continue the committee with an appropriation of necessary funds; but a point of order raised by Dr. Scott that a resolution had just been passed laying such matters over until the next meeting, was ruled by the President as correct. On appeal taken from the ruling of the President, the President was sustained.

A resolution offered that the Nominating Committee should make its report on Thursday morning of each meeting; after the reading and adoption of the minutes, raised a point of order that the resolution should be referred to the Business Committee. The President's ruling that it was not necessary to refer it to that committee, resulted in an appeal, when the President was again sustained.

On motion, the Nominating Committee was directed to report immediately; but the secretary of that committee being absent no report could be obtained. The chairman of the Nominating Committee announced that Atlanta, Ga., was selected as the next place of meeting.

GENERAL SESSION. — FOURTH DAY.

DR. H. D. HOLTON, of Vermont, read

THE ADDRESS ON STATE MEDICINE.

This paper commenced with a review of the various attempts on the part of the ancients to establish hygienic measures.

It also called attention to Dr. Rush's efforts in this direction, and deplored the lack of patriotism in the erection of a monument to his memory; but Dr. Holton hoped the subscription started the previous day would result in an immediate consummation of its object.

*State Health Boards.* — While every State in the Union, with the exception of three, had established State Boards, which had accomplished more or less good, he thought they should be composed entirely of men who understand the subject from the scientific point of view, and should not be used for political purposes as unfortunately was now the case in many instances.

*State Appropriations for Military Purposes compared with those for the Protection of the Public Health.* — Money was almost lavishly appropriated by State Legislatures for the support of our military organizations. Compare this with the niggardly appropriations for the protection of the public health. New York State alone appropriated in a single year nearly $800,000 more for the militia than for its health board.

*Deaths caused by War contrasted with those by Disease.* — During our last war the deaths in battle amounted to about 93,000 while for the same length of time we have had 108,000 deaths caused by preventable diseases.

*National Health Board.* — That a National Board should be formed admits of no discussion, but the slow, red-tape manner in which it is necessary to bring about any innovation in national affairs makes constant agitation of this subject necessary. During the Fifty-third Congress, the Health Bill, known as Senate Bill, No. 840, met an untimely death in the hands of the Committee on Epidemic Diseases. Before the new bill is introduced in the Fifty-fourth Congress it should be amended so as to appoint medical officers of the Marine-Hospital, Navy and Army Services as an advisory board to the Health Board. However, before anything can be accomplished it will be necessary through the press to educate the people upon this subject. Unless the bill has behind it responsible parties to watch its progress, it is sure to be smothered in the committee.

*National Quarantine.* — Owing to the various laws in different States regarding quarantine measures, we shall never have an efficient quarantine until a national one is established. Of what avail is a rigid enforcement of appropriate laws at some points, when disease can enter our country unhindered at others?

*Vaccination.* — In nearly all foreign countries the production and distribution of vaccine virus is under the control of the government. Here it is almost wholly in commercial hands, who have more interest in the largest returns from the smallest possible outlay. Its distribution is through the middleman and druggist; and frequently this virus has been lying in the drawer for weeks and even months before being sold. Under these circumstances, is it any wonder that it proves inert? And when it is inert, after repeated trials the patient is told that he is not susceptible to the disease. If fresh lymph is used, it is a rare case that will show insusceptibility.

*Contaminated Vaccine.* — This is a far more serious matter than inert virus. Frequently, through the carelessness or gross ignorance of those employed in its manufacture it is exposed to and becomes contaminated by microbes, its use subjecting the victim to all the dangers of septicemia. An earnest appeal should be made for a National Board to have exclusive control of its manufacture and sale.

*Alcohol* was claimed to be the cause of more disease than it helped to cure, and was as much the cause of insanity, pauperism and crime as all the other causes combined.

*Antitoxin* should also be manufactured exclusively by the National Board. It should be absolutely fresh, and great care taken in its use.

*Tuberculin.* — While Koch's lymph does not cure tuberculosis, it has proved of inestimable value in establishing the diagnosis of tuberculosis in cattle.

*Tuberculosis.* — He thought cattle, fowl and pigs were disseminators of tuberculosis. The cattle of the West showed two per cent. afflicted with the disease; Baltimore, three and one-half per cent.; New York, two per cent.; while in Massachusetts it was seven per cent.

*Infectiousness of Milk.* — Milk is infected whether there are tubercles of the udder or not; and the presence or absence of udder tubercles has no effect upon the spreading of the disease through the milk. Also the muscles where no tubercles could be found it was demonstrated that the juice of these muscles could and did produce the disease. This brings up the question as to whether the bacillus is the cause or only the product of the disease.

*Proprietory Medicines.* — Many of these articles are of an extremely dangerous and, in some instances, fatal character, masked behind a trade-mark. If the government at Washington compelled the printing of the formula of said articles upon their containers, it would do more towards eradicating this evil than the strongest possible words of condemnation.

On motion of DR. HAMILTON, hereafter the Treasurer was to precede the Association a few days at it place of meeting, to make necessary arrangements for facilitating business.

The Report of Committee on Benevolence brought out the remarkable fact that the greatest support towards this object came from the bachelor members of the profession. The report was accepted and the Committee continued.

Dr. Woolsey, of California, calling attention to the spreading of diseases through the medium of our money circulation, offered a resolution calling upon the government to retire paper money and recoin the gold and silver at stated periods. How this was going to stop the spreading of disease through the money medium was not made very clear. The resolution was referred to the Committee on State Medicine.

The Report of the Committee on Nominations was as follows:

President, B. B. Cole, of California. 1st Vice-President, J. J. Chisholm, Maryland. 2d Vice-President, C. Le Grand, Alabama. 3d Vice-President, Augustus B. Clarke, Mass. 4th Vice-President, J. B. Satterwaite, Kentucky. Treasurer, H. P. Newman, Illinois. Secretary, Frank Woodbury, Pennsylvania. Librarian, G. E. Wise, Illinois. Trustees: Alonzo Garcelon, Maine; I. N. Love, Missouri; J. E. Reeves, Pennsylvania. Judicial Committee: N. S. Davis, Illinois; H. D. Dideme, New York; Jno. Morris, Maryland; W. E. B. Davis, Alabama; Geo. W. Browner, Missouri; D. W. Smouse, Iowa; M. B. Ward, Kansas; W. W. Welch, Pennsylvania. Readers of Addresses at next Annual Meeting: Surgery, Dr. Senn, Chicago, Ill.; Medicine, Dr. Osler, Baltimore, Md.; State Medicine, Dr. Rohé, Baltimore, Md.

The place of the next annual meeting is to be Atlanta, Ga., on the first Tuesday in May, 1896.

Upon motion the report of the Nominating Committee was accepted with the exception of the portions relating to the next place of meeting and the election of the Secretary.

A motion was made by Dr. Ferguson that the portion of the Nominating Committee's report referring to the Secretary be not agreed to, and the name of the present Permanent Secretary, W. B. Atkinson, substituted. This motion caused considerable personal discussion; but it was finally carried, and the present officer was continued in office.

A motion to substitute Washington as the place of the next meeting was lost, and Atlanta, Ga., finally adopted as the place.

A resolution was offered, inviting the members of the New York Academy of Medicine, New York State Medical Society, and New York County Society to send delegates to the next meeting of the Association; that the members of said bodies be admitted to membership in the Association upon application and upon presentation of proper credentials; and that all former sections in the By-laws, Constitution or Code of Ethics conflicting with this resolution be repealed. Here, again, the boomerang of the previous day returned; and although the Association wished to do so, no action could be taken on this resolution until next year.

Drs. Gihon and Ferguson being appointed as a committee, escorted the President-elect to the chair. He made a short address thanking the members for the honor conferred, at the same time warning them he should rule with a just but very *firm* hand.

A resolution by Dr. Osler was adopted urging the members to support the *Index Medicus* until such time as it should be self-supporting.

A resolution from the Association of Acting Assistant Surgeons, requesting Congress to place the surgeons who had served during the late war upon the same plane as the commissioned officers of the same grade, was unanimously adopted.

Regarding delegates to foreign countries, a resolution was adopted making any one who wished to visit a foreign meeting, a delegate from this Association, and upon application his credentials would be furnished by the President.

Among other resolutions adopted were the following: recommending all medical schools to adopt the metric system; that the American Medical Association adhere rigidly to the unmodified Code of Ethics; that the programme of the Association be published in the *Journal* at least three weeks prior to the meeting (referred to the Business Committee); appropriating funds necessary for printing and circulating circulars relative to the Rush Monument Fund (referred to the trustees, with power to act).

*(To be continued.)*

## Recent Literature.

*The Jewish Method of Slaughter Compared with Other Methods, from the Humanitarian, Hygienic and Economic Points of View.* By J. A. Dembo, M.D., Physician to the Alexander Hospital, St. Petersburg, etc. Translated. Pp. 111. London: Kegan Paul, Trench, Trübner & Co. 1894.

*Bau, Einrichtung und Betrieb, von öffentlichen Schlachthöfen.* Von Dr. Med. Oscar Schwarz, Sanitäts-Thierarzt, etc. Illustrated. Pp. 238. Berlin: Julius Springer. 1894.

Dr. Dembo's book is the outcome of a study of the methods employed for slaughtering animals in the larger slaughtering establishments of the principal European cities, and especially at St. Petersburg. The *shecheta*, or Jewish method, consists in slaughtering by rapid division of the carotids and other blood-vessels of the head, unconsciousness supervening very quickly in consequence of the sudden loss of blood. Other methods named by the author, with which he contrasts the Jewish method, are stunning, shooting, and the neck-stab. Dr. Dembo claims that unconsciousness supervenes, when the *shecheta* is practised, in three or four seconds, and that the cut is painless. He also claims that the epileptiform convulsions which follow this method render the meat less alkaline and hence diminish its properties as a nutrient medium for bacteria.

The work of Dr. Schwarz is an excellent treatise upon the construction, management and business of public slaughtering establishments. After a brief historical summary, the author presents the existing Russian laws relating to public slaughter-houses, and the arguments for and against their establishment. Descriptions are given of establishments suitable for cities of 10,000 and 30,000 inhabitants. One chapter is devoted to the accessories of a well-equipped slaughter-house — such as the different modern appliances for refrigeration by means of various mechanical processes.

The methods of disposing of the sewage of slaughter-houses are also treated in detail. The supervision of such establishments, the disposal of the meat of diseased animals, and other minor topics receive due attention.

This work deserves a good English translation, and would prove very useful to the health authorities of our large cities.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, MAY 16, 1895.

*A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.*

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## THE BRITISH ROYAL COMMISSION ON TUBERCULOSIS.

The course pursued by the British Parliament in regard to the important question of Tuberculosis in Cattle is in strong contrast to that which has been adopted by the Legislature of several New England States, including Massachusetts. For while the latter contented themselves with settling the economic questions which had to do with reimbursing the owners of slaughtered cattle, the British Commission instituted an investigation, the object of which was to "inquire and report what is the effect, if any, of food derived from tuberculous animals upon human health, and, if prejudicial, what are the circumstances and conditions with regard to tuberculosis in the animal, which produce that effect upon man."

The British Commission (appointed in November, 1894) consisted of Sir George Buchanan, Professor Browne, Dr. J. F. Payne, and Prof. Burdon Sanderson. The report which was presented on the 22d of April, 1895, received the assent of all the members.

Many distinguished pathologists and physicians were examined; and the Commission, concluding that they had not sufficient evidence, entrusted further inquiries to Professor McFadyean, Dr. Sydney Martin and Dr Sims Woodhead upon the following points:

(1) As to the means of recognizing tuberculosis in animals during life.

(2) As to the influence upon lower animals of food of tuberculous origin.

(3) As to the effects of cooking-processes upon food from tuberculous animals.

And the report is chiefly founded upon the results of these investigations.

In settling the question as to the effect of feeding animals with food of tuberculous origin, the investigation showed, first, that uncooked food derived from tuberculous animals, whether consumed by rabbits, guinea-pigs, cats or pigs, produces tuberculosis in a considerable proportion in each; secondly, that tuberculous matter added, if only on one occasion, to the ordinary food of any one of these animals, causes a still larger proportion to become tuberculous.

As regards man, the Commission believes that "any person who takes tuberculous matter into the body as food, incurs some risk of acquiring tuberculous disease."

The Commission takes the view that no distinction can be drawn in nature between tuberculous diseases originating in food infection, and those originating in other ways. They point, however, to the probability that the greatest effect of food infection is to be found in the tuberculous intestinal lesions of children.

With reference to the recognition or diagnosis of tuberculosis in cattle during life the Commissioners speak quite cautiously. Inquiries upon this point were limited by the fact that systematic meat inspection is not carried out in England with such thoroughness as prevails in most Continental slaughter-houses. The results of Professor McFadyean's inquiry show that tuberculous disease may exist in cattle that appear to all clinical tests to be in perfectly good health.

The Commissioners are not inclined to believe that a completely trustworthy test of tuberculosis has yet been proved to exist in the reaction of tuberculin. Professor McFadyean records, as the outcome of his experiments, that he received wrong indications from tuberculin as to the presence or absence of tubercle in cattle in the case of 24 animals out of 75; nevertheless, he sums up his report by the statement, "I have no hesitation in saying that, taking full account of its imperfections, tuberculin is the most valuable means of diagnosis in tuberculosis that we possess." The Commission adds that since these experiments were made the methods of using tuberculin have been improved and its use is now regarded as more trustworthy.

Dr. Martin's experiments form the basis of a very important portion of the report. He states that tuberculosis is chiefly a disease of organs which are, for the most part, removed in the process of "dressing" the carcass. As a result of his examinations and experiments showing the comparative rarity of tubercle in the meat substance, the Commissioners state their belief, that the power of infection of meat from such carcasses is mainly due, not to tuberculous matter left in the meat *in situ*, but to matter carried from tuberculous organs in the process of dressing by the butchers' knives or cloths, and thus smeared freely over the carcass.

The danger of such a proceeding must increase *pari passu* with the amount and distribution of the tuberculosis in the animal.

The Commissioners conclude, with Dr. Martin, that if sufficient discrimination and care were exercised in taking meat from tuberculous cattle a great deal of

meat from them might, without danger, be consumed by the community: and they point to the practice of public abbatoirs on the Continent as being founded on the same belief.

Dr. Martin would advocate, as a principle, that the operations of slaughter and dressing should be done under skilled supervision, with the object of removing and destroying every part of a carcass that contains any tubercle whatever, and also of destroying the whole carcass in cases where the animal is found to have advanced or general tuberculosis. He sees no objection to the sale of meat substance from carcasses which have shown only localized tuberculosis, and from which every particle of tubercle has been skilfully removed; provided always that, in every subsequent process of preparing the meat for sale, due care is taken to guard the saleable portions from contamination by tuberculous matter.

With reference to the danger from milk of tuberculous cows, the experiments of Dr. Martin present striking evidence that the milk of a tuberculous cow is only infective when it comes from a tuberculous udder. They show that the milk from such source is extremely virulent, and that milk, butter, skimmed milk and buttermilk from a cow with a tuberculous udder are actively infectious. The Commission concludes that "the withdrawal from the dairies of every cow that has any disease whatever of the udder, would form some approach to security against the serious danger incurred by man from the use of tuberculous milk, but it would not be an adequate security. The presence in any dairy of a tuberculous cow is a decided source of danger to the public. He suggests the employment of experts to determine the existence or non-existence of cows with tuberculous udders, in dairies, and says, if the expert finds tubercle bacilli in the milk, the cow has dangerous tuberculosis of the udder."

In order to destroy the infectiveness of tuberculous milk the Commission warmly advocates boiling, and evidently regards with suspicion any advice to the public to attempt to sterilize milk by heating it to a temperature short of the boiling-point. (The tourist who drinks milk as a beverage invariably finds it served raw in England, while upon the Continent it is always served boiled.)

The following recapitulation sums up the conclusions of the Commission:

"We have obtained ample evidence that food derived from tuberculous animals can produce tuberculosis in healthy animals. The proportion of animals contracting tuberculosis after experimental use of such food is different in one and another class of animals; both carnivora and herbivora are susceptible, and the proportion is high in pigs. In the absence of direct experiments upon human subjects we infer that man also can acquire tuberculosis by feeding upon materials derived from tuberculous food animals. The actual amount of tuberculous disease among certain classes of food animals is so large as to afford to man frequent occasions for contracting tuberculous disease through his food. As to the proportion of tuberculosis acquired by man through his food or through other means we can form no definite opinion, but we think it probable that an appreciable part of the tuberculosis that affects man is obtained through his food. The circumstances and conditions with regard to the tuberculosis in the food animals which lead to the production of tuberculosis in man are, ultimately, the presence of active tuberculous matter in the food taken from the animal and consumed by man in a raw or insufficiently cooked state.

Tuberculous disease is observed most frequently in cattle and swine. It is found far more frequently in cattle (full grown) than in calves, and with much greater frequency in cows kept in town cow-houses than in cattle bred for the express purpose of slaughter. Tuberculous matter is but seldom found in the meat substance of the carcass; it is principally found in the organs, membranes and glands. There is reason to believe that tuberculous matter, when present in meat sold to the public, is more commonly due to the contamination of the surface of the meat with material derived from other diseased parts than to disease of the meat itself. The same matter is found in the milk of cows when the udder has become invaded by tuberculous disease, and seldom or never when the udder is not diseased. Tuberculous matter in milk is exceptionally active in its operation upon animals fed either with the milk or with dairy produce derived from it. No doubt the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter. The recognition of tuberculous disease during the life of an animal is not wholly unattended with difficulty. Happily, however, it can in most cases be detected with certainty in the udders of milch cows. Provided that every part which is the seat of tuberculous matter be avoided and destroyed, and provided care be taken to save from contamination by such matter the actual meat substance of a tuberculous animal, a great deal of meat from animals affected by tuberculosis may be eaten without risk to the consumer. Ordinary processes of cooking applied to meat which has got contaminated on its surface are probably sufficient to destroy the harmful quality. They would not avail to render wholesome any piece of meat that contained tuberculous matter in its deeper parts. In regard to milk we are aware of the preference by English people for drinking cow's milk raw — a practice attended by danger on account of possible contamination by pathogenic organisms. The boiling of milk, even for a moment, would probably be sufficient to remove the very dangerous quality of tuberculous milk. We note that Your Majesty's gracious commands do not extend to inquiry or report on administrative procedures available for reducing the amount of tuberculous material in the food supplied by animals to man, and we have regarded such questions as being beyond our province."

The foregoing conclusions are worthy of the careful consideration of all American legislators, who are vitally concerned in this important question.

## THE NAVY MEDICAL SERVICE.

The trial of Medical Inspector Kershner of the navy, by court-martial on a charge of having given publicity to matters concerning the service, and then of having denied that he had done so, emphasizes the unsatisfactory position of the navy medical officers, discussed at greater length in our editorial of February 7, 1895.

It is well known that the medical officers of the navy are placed upon an inferior footing to line officers of the same grade. The difficulty of getting self-respecting medical men to serve in the navy is, no doubt, due to this fact, and the feeling engendered by this state of things cannot but produce unfortunate results, as it probably did in this case of Dr. Kershner, who refused when ordered by his captain and later by his admiral (Meade) to render service on board a merchant vessel in the Barbadoes. He complained to the department at Washington of having been ordered to render service outside his sphere of duty, and was upheld in his refusal.

## MEDICAL NOTES.

The American Medical Association. — The forty-sixth annual meeting was held in Baltimore, May 7, 8, 9 and 10, 1895. The General Session of the Association was opened by the Hon. F. C. Latrobe, Mayor of Baltimore, in an address of welcome in behalf of the city. His promise that the members would be pleased with the hospitalities, public and private, of which they would be the recipients during their stay, was more than verified by the experience of the visiting physicians at the hands of their entertainers. Dr. Samuel C. Chew, chairman of the Reception Committee gave the address of welcome on behalf of the medical profession of Baltimore, in which he spoke of Baltimore as a centre of medical education, and of the progress of medical science since the Association last met in that city in 1866.

The report of the Judicial Council, finding that objectionable advertisements had been printed in the *Journal* was presented, and the attention of the trustees and the editor was called to the fact. Motions that the trustees report on Wednesday, and that their report be referred to a committee which should report on the following day, and that a committee be appointed to confer with the trustees, were laid on the table.

It was voted, on motion of Dr. Millard, of St. Paul, that it was the sense of the Association that the officers of the medical corps of the navy should have the same rank, pay and emoluments as those of the army. It was moved and carried that this resolution be printed, and also that a copy of the same be sent to the President of the United States, the Secretary of the Navy, and to every member of the Fifty-fourth Congress.

Tuesday evening, May 7th, receptions were tendered to the members and their wives by Dr. Julian J. Chisholm, Dr. Howard A. Kelly, and Dr. Robert W. Johnson. Dr. George H. Rohé, the superintendent of the Maryland Hospital for the Insane at Catonsville, also entertained a number of the visiting physicians at the hospital at Catonsville.

Wednesday evening a reception was held by Dr. and Mrs. Henry M. Hurd at the Johns Hopkins Hospital.

Thursday the report of the trustees on the advertisements in the *Journal* stated that none of its contemporaries present advertising pages that are as free from objectionable material. The editor with the termination of present contracts is to be instructed "to accept no advertisements of medicinal preparations the proprietors of which do not give a formula containing the officinal or chemic name and quantity of each composing ingredient to be inserted as a part of the advertisement."

Thursday afternoon over four hundred of the members accepted the invitation of the trustees of the Sheppard Asylum to visit and inspect the buildings of that institution. In the evening a reception was tendered the members of the Association at the Music Hall.

Dr. W. S. Westmoreland, of Atlanta, was chosen chairman of committee of arrangements for the meeting of 1896, Dr. J. McFadden Gaston, Jr., was named for assistant secretary.

Atlanta, Ga., was chosen as the place of meeting for 1896.

Tubercle Bacilli in the Nose. — Dr. Strauss has reported in *Archiv de Médicine Experimentale*, that he has verified the occurrence of these bacilli in the nasal cavities of persons, themselves in good health, who have been frequenting localities where phthisical patients were habitually present.

Practician or Practitioner. — The *Medical News* in an interesting editorial on "Questions of Nomenclature," characterizes the term practitioner in the following language: "Medical language has a somewhat fatalistic tendency to philologic barbarism that healthy modern minds should withstand. No science is so given to absurdities of nomenclature. Even a much-used synonym of physicians is philologically more than outlandish. The French have a word *praticien* for one who practices, for example, the law, and we have the same word in medical English, unused but properly formed — *practician*. With megalosaurean wit we devise and use the linguistic outrage, *practitioner*. With just as much reason should we say *academicianer* or *dentistianer*. A practicer is, of course, one who practises; a practitioner, therefore, must be one who practitions!"

Mountain Air for Cities. — Dr. S. E. Hampton writes to the *Journal of the American Medical Association* the details of a plan elaborated by him by which "mountain air" can be obtained by suction pumps acting through large steel-plate pipes, carried to a height of 600 feet into the air and supported by guys. An ideal mountain resort could thus be furnished in the middle of a city, by merely having a glass-covered room supplied with air obtained in this way. This audacious plan for bringing climate to patients instead of sending patients to climate, Dr. Hampton thinks would be of trifling cost compared with the benefits to be derived. Perhaps when the patients thus treated had acquired strength enough to begin horse exercise they could be provided with respirators, attached to long rubber tubes, and allowed to ride about a large arena, thus securing a powerful adjuvant in their "climatic" treatment!

A Fatal Case of Poisoning by Lysol. — A case is reported in the Vienna daily papers in which a mother gave a twenty-four-hour-old baby a teaspoonful of lysol solution, instead of rhubarb, with fatal result. The *Wiener klinische Wochenschrift* calls attention to this fact in connection with the endorsement given by the Austrian public health authorities of lysol as a disinfectant combining the qualities of great effectiveness, and at the same time harmlessness as compared with carbolic-acid and corrosive-sublimate solutions, and therefore peculiarly adapted to midwifery practice. This is the first case which has been re-

ported of poisoning by lysol, while in the early years of the employment of carbolic solutions, the daily papers kept a permanent heading for cases of carbolic-acid poisoning. It cannot be denied that the introduction of lysol solutions have resulted in a marked improvement.

A Slight Mistake. — The following instance where a bad cold caused a startling conversation is reported in the *Sanitarian:* "A modest young newspaper man was invited to a party at a residence where the home had recently been blessed with an addition to the family. Accompanied by his best girl he met his hostess at the door, and after the customary salutations asked after the baby. The lady was suffering from a severe cold, which made her slightly deaf, and she mistakenly supposed that the young man was inquiring about her cold. She replied that though she usually had one every winter, this was the worst she ever had; it kept her awake at night a good deal at first and confined her to her bed. Then noticing that the scribe was becoming pale and nervous, she said that she could see by his looks that he was going to have one just like her's, and asked him if he wished to lie down. The paper came out as usual the next week, but the editor has given up inquiring about babies."

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, May 15, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 55, scarlet fever 30, measles 132, typhoid fever 14.

The Norfolk District Medical Society. — At the annual meeting on May 14th, the following officers were elected for the ensuing year: President, Dr. D. D. Gilbert, Dorchester. Vice-President, Dr. W. S. Everett, Hyde Park. Secretary and Librarian, Dr. James C. D. Pigeon, Roxbury. Treasurer, Dr. Edw. G. Morse, Roxbury. Commissioner of Trials, Dr. George K. Sabine, Brookline. Nominating Councillor, Dr. T. Garceau, Roxbury. Censors: Dr. C. F. Withington, Roxbury, supervisor; Dr. B. S. Blanchard, Brookline; Dr. E. F. Dunbar, Roxbury; Drs. D. G. Eldridge and Dr. E. B. Lane, Dorchester; and twenty-nine councillors.

Typhoid Fever and Milk. — An epidemic of typhoid fever is reported at New Milford, Conn. There have been already 23 cases, and the disease is ascertained to have its source in milk obtained from a certain farm. The disease in the case of the Yale junior, B. A. White, who died at the Yale infirmary on May 6th, is said to have been contracted from this source. A farm laborer who had come from another town, and was either suffering from a mild form of typhoid, or was in its early stages, was employed to do the milking on the farm in question, which furnished the milk-supply of a private school, and of all the families in which the disease has so far appeared. A rather forcible argument for the sanitary inspection of dairy farms!

### NEW YORK.

Commencement at the University of the City of New York. — The annual Commencement exercises of the Medical Department of the University of the City of New York were held at Carnegie Music Hall on the evening of May 7th. There were 101 graduates. In presenting them with their diplomas the chancellor of the University, the Rev. Dr. Henry McCracken, said: "Young gentlemen, the diplomas I shall now give you bear the signature of the Governing Faculty, with the exception of our oldest and most esteemed professor, Dr. A. L. Loomis, who, while he is absent from us in the living character, is, I am sure, among us in spirit. We shall remember him reverently, as the last of a long line of illustrious men dating from the time of Valentine Mott." The usual prizes and honors having been announced, including the appointment to Bellevue Hospital, the valedictory was delivered by Henry Lincoln Borland, of the graduating class; after which General Horace made the address to the class.

Death of Dr. Byron. — Dr. John M. Byron, chief of the bacteriological department of the Loomis Laboratory and lecturer on that branch in the University Medical College, died of tuberculosis on May 7th, in the thirty-fourth year of his age. He believed that he contracted the disease by the inhalation of tubercle bacilli in some material with which he was experimenting and which he had allowed to become dry. Dr. Byron was born in Peru in 1861, and was graduated at the University of Naples. He also studied medicine for some time in Paris. He came to New York in 1888 and began to teach bacteriology. He soon became known as an expert in that department of medicine, and during the cholera excitement in 1892 he was selected by Health Officer Jenkins to be the bacteriologist at the Quarantine Station, and to have charge of Hoffman and Swinburne Islands. For some time he had been a member of the bacteriological bureau of the New York Board of Health, and a short time before his death he was appointed by the present Health Officer, Dr. Doty, bacteriologist to the Quarantine Department.

## Miscellany.

### A NEW RHINOPLASTIC OPERATION.

In the *Medical Press and Circular* for April 10th is reported the case of an ex-soldier upon whom Mr. Astley Bloxam performed rhinoplasty by grafting a finger over the space left by the loss of a nose. A flap had been previously turned down over the forehead according to the Indian method, but the partially adherent flap hung down in ungraceful folds, and incompletely covered the defect. An attempt to graft on a newly amputated finger proved unsuccessful.

The patient offering to sacrifice one of his own fingers, Mr. Bloxam trimmed and prepared the finger, and placed it in a wedge-like opening which he made in the forehead flap. It was retained for over a month in this position by means of a plaster-of-Paris bandage, and union was obtained. The finger was then amputated, and then gradually trimmed into shape, when it was found to be somewhat too low to look well. The surgeon then shifted it bodily upward half an inch or so, and after further trimming succeeded in furnishing his patient with a fairly respectable nose, with a bony bridge, in which respect it is probably unique.

The grit and endurance of the patient are fully as much to be commended as the skill and persistence of the surgeon in this case; and it is to be hoped that after the nose has had time to settle into shape, a full report with photographs will be published.

## A SYPHILITIC LESION OBSERVED IN A PRE-COLUMBIAN SKULL.

DR. ALBERT S. ASHMEAD writes to the New York *Medical Journal* as follows:

"In the Baudelier collection, Metropolitan Museum, New York, there is a skull of a mummy, just being classified, from Pacha Camac, on the Peruvian coast, near Lima. It was found twelve feet underground, and no other part of the skeleton was in a condition to be shipped. It is, without doubt, according to Mr. Saville, the director, and Professor Putnam, who examined the specimen with me, pre-Columbian. In this burial place nothing modern, nothing post-Columbian has ever been found.

"In the right supratemporal region of the skull, on the parietofrontal suture, there is a mark of disease, almost eating through the bone; there is no doubt that the scalp had been removed, and what followed we may guess — it was found that the skull itself was affected, and the case was left alone. Evidently the man lived long enough to almost allow time to obliterate the mark of the surgeon's instrument. On the inside of the skull no mark of disease, except the extreme thinness of the tissue, strikes the observer. To my mind, this is an instance of syphilis in a pre-Columbian skull. The location of this lesion and the appearance of the diseased bone throughout are peculiarly syphilitic. I have seen such instances many times in Japan, on the living body, and once in a post-mortem examination in a *yoshiwara* (licensed prostitute)."

## Correspondence.

### DEFLECTION OF BULLETS BY TISSUES.

DENVER, COL., May 6, 1895.

MR. EDITOR: — The discussion of the paper of Dr. Julian A. Mead in your issue of April 25th, calls for comment in certain particulars.

It should be more widely known by physicians that deflection of the ball does depend very largely upon its velocity. To illustrate this, let us take the following extreme examples; prefacing these by stating that we shall attempt to prove that the bullet from any large-calibred sporting rifle would scarcely be deflected by any tissues in the human body:

I have known a ball from a .40 cal. Sharp's rifle, weighing 360 grs., with a powder charge of 90 grs., to pass entirely through a buck deer lengthwise, breaking five ribs, the head of the femur and the adjoining pelvic bones, and afterwards cutting a channel nearly two feet long in the hard clay of the cañon in which the deer stood at the time of shooting, and to pass onward with a scream which could be heard for some seconds, showing that its velocity was still considerable. In another instance, a ball of .44 cal., weighing about 400 grs., with 77 grs. of powder, passed lengthwise through a full-grown grizzly bear, leaving a wound nearly five feet in length. In still another instance, a .40 cal. ball, weighing about 260 grs., and fired with 82 grs. of powder, cut a straight furrow through the buttress of dense bone upon the skull of a grizzly which constitutes the chief skeletal mark characteristic of *Ursus horribilis*. This bear was at a distance of 250 yards, and the ball impinged at an angle of about 10 degrees. It was not sufficiently deflected to prevent the second wound, which it made after emerging from the skull and entering the tip of the nose, from being in an absolutely straight line, so far as I could determine, with the wound in the skull. Of more than one hundred black-tail deer killed by a friend of mine with whom I have done much shooting, with a 44-77 Sharp's mentioned, the ball was found in the body but once. After quoting such examples as these, it is needless to state that no tissues in the human body could ordinarily appreciably deflect such missiles as those spoken of; so that, to my mind, at least, that subject needs no further discussion.

In the cases quoted, heavy missiles, with plenty of good powder, were used, in thoroughly well-made weapons, with great length of barrel as compared with the ordinary revolver, thus securing the full effect of the burning powder. On the other hand, if the cheap, pot-metal type of revolver is used, with a small bullet and a little poor powder, the ball is practically a spent one when it emerges from the muzzle. If the powder is improperly made, much carbon may remain after its deflagration, instead of being burned to make gas and thus assist in the work to be done; if the powder be too coarse-grained, it may be blown out of the barrel like shot, even to such an extent that it may stick in a board many feet away, in one instance, which I saw, with coarse blasting powder, at a distance of more than 20 feet. These grains not only fail to assist in making gas, but must detract from the force moving the bullet, because they require a part of the force for their own movement. Further, the gas developed may leak out and thus be inefficient if the weapon lack in accuracy of finish. Where so many variable factors enter, it is easy to see that the effect may be almost anything.

I have known one pistol-ball to strike the collar-bone and drop to the ground, and another one to strike the thenar eminence of a boy's hand and drop in similar manner, leaving merely a hole in the skin. Both shots were at very short range. These examples will show that a bullet may be stopped by the tissues without doing them any very serious damage.

Now we come to those curious and interesting cases, of which many examples are on record, and of which I have seen quite a number, in which the ball has sufficient momentum to enter the body, but not enough to cause it to continue in a straight path. Most of us have repeatedly seen the pistol-ball deflected up the forearm by the flexor tendons — in my experience the most common example of deflection met with. The skin of the chest and neck has many times carried the ball round the body at least half-way, after it has been deflected from a rib or other firm tissue — even the larynx in one case. In one of my cases, which I have quoted elsewhere, the ball was at the spinous process under the skin at about the first lumbar vertebra, having entered near the sternum.[1] I have known the scalp to carry a ball quarter or half-way around the head in two or three instances. Similar examples are so common as to render further quotation superfluous. The

[1] Gunshot wounds in their Medico-Legal Relations, International Medico-Legal Congress, 1893.

ones given will serve to establish, I think, that no tissues will turn some bullets, while any tissues will turn others.

After these considerations, it would be absurd to suppose that the sternum could not deflect a revolver-bullet, and equally so to expect it to materially deflect a ball from a sporting rifle. And when we take into account other features than those studied — the firmness of the tissues and the momentum of the ball — our position will be still stronger.

A bolt-shaped bullet of very hard metal is less likely to be deflected from its course than a spherical ball of soft metal, of equal weight. The latter form of bullet has been the one which has given rise to the most curious instances of deflection on record, for the reason that all favoring features were present. These were (1) low velocity, for such bullets were formerly fired by a small charge of powder, thus giving, whatever the size of the ball, a relatively small momentum; (2) spherical shape, thus offering the greatest possible surface to the tissues of the body penetrated, and doing away with the penetrative effect of a pointed ball; and (3) soft metal in the composition of the missile, favoring deformation. If the deformation be very great, however, the ball tends to stop from the enormously greater resistance with which it meets.

With reference to the brand, there can be no possible doubt that the reason why it appears above the bullet-hole is that the weapon is "kicked" higher up at the time of the emergence of the powder and the gases than at the time the bullet comes from the muzzle, for the brand is at a higher and higher point as the weapon is withdrawn from the target, because the angle between the line of the bullet and that of the gases remaining the same, a greater and greater arc is necessary to subtend the constant angle. It is not at all necessary to open the question of whether the bullet is "kicked" upward, so long as the gases emerge after it.

The position assumed by Drs. Draper and Mead regarding the shape of the wound in the skin is equally as impregnable as in the matters considered. In a murder-case now pending, I was able, at the autopsy, to indicate the general course of the bullet, by the appearance of the wound of entrance which was distinctly elliptical. The ball had entered the chest at an angle of about 50 or 60 degrees, and left, upon the side of the lesser angle, distinct evidence of its course, in the shape of a wide, blackened, rather inverted border, not present in equal degree on the remaining edges of the wound. I have noted the same conditions repeatedly before, and notably in animals shot at a very acute angle. I saw one wound more than twice as long as broad made at an angle of probably not over five to eight degrees, which facts, taken together, certainly settle the question in my own mind. Very truly yours,

J. N. HALL, M.D.

## DIPHTHERIA ANTITOXIN AND "THE METROPOLITAN DISTRICT."

BOSTON, May 9, 1895.

MR. EDITOR: — I notice in your review of the work of the Boston Board of Health for the year 1894, (JOURNAL, May 2d, p. 445), a statement that the city board has under consideration a proposition for extending the distribution of antitoxin "at cost price to the well-to-do and the health authorities of the smaller communities forming a part of what is known as the Metropolitan District."

I would, therefore, respectfully inquire why the city of Boston should be taxed to supply a district outside its own limits, especially when (as you have stated in the previous issue of April 25th), the State Board of Health has already, for several weeks, been engaged in the distribution of the same useful product in an entirely satisfactory manner. Since this life-saving work appears to be a part of the legitimate function of the general board, we sincerely hope that it may be permitted to continue such a distribution.

Yours respectfully,

WEST-END.

## METEOROLOGICAL RECORD.

For the week ending May 4th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather* | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..28 | 30.39 | 42 | 45 | 40 | 90 | 88 | 89 | N.E. | E. | 12 | 8 | O. | O. | .01 |
| M..29 | 30.37 | 44 | 51 | 37 | 90 | 77 | 83 | E. | S. | 5 | 8 | O. | C. | |
| T.. 30 | 30.20 | 58 | 70 | 46 | 89 | 86 | 88 | S. | N. | 5 | 14 | R. | O. | .11 |
| W.. 1 | 30.45 | 44 | 48 | 40 | 37 | 72 | 54 | N.E. | S. | 25 | 6 | C. | C. | |
| T.. 2 | 30.33 | 50 | 64 | 36 | 60 | 53 | 56 | S.E. | S.W. | 5 | 12 | C. | C. | |
| F.. 3 | 30.17 | 63 | 79 | 47 | 73 | 80 | 77 | S.W. | S.W. | 8 | 12 | C. | C. | |
| S... 4 | 30.12 | 70 | 83 | 56 | 78 | 88 | 83 | S.W. | N.E. | 9 | 15 | O. | R. | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 4, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diarrheal Diseases. | Diphtheria and croup. | Scarlet fever. |
| New York | 1,956,000 | 890 | 357 | 13.64 | 20.90 | 1.43 | 5.28 | 1.65 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 471 | 129 | 9.45 | 15.75 | .42 | 5.25 | .21 |
| Brooklyn | 1,043,000 | 400 | 132 | 12.75 | 21.00 | 1.50 | 6.50 | 1.25 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 212 | 68 | 10.34 | 19.27 | 1.41 | 4.23 | 1.41 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 124 | 37 | 8.90 | 12.76 | — | — | — |
| Cincinnati | 325,000 | 112 | 29 | 4.86 | 20.25 | .81 | .81 | 1.62 |
| Cleveland | 325,000 | 98 | — | 10.20 | 7.14 | — | — | 3.06 |
| Pittsburg | 272,000 | — | — | — | — | — | — | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 31 | 10 | — | 22.61 | — | — | — |
| Charleston | 65,165 | 23 | 6 | 17.40 | 17.40 | 17.40 | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 25 | 10 | — | 8.00 | — | — | — |
| Fall River | 92,232 | 30 | 12 | 16.66 | 26.66 | 13.33 | — | 3.33 |
| Lowell | 90,613 | 21 | 11 | 9.52 | — | — | 4.76 | — |
| Cambridge | 79,607 | 24 | 9 | 12.48 | 24.96 | — | 8.32 | — |
| Lynn | 65,123 | 18 | 5 | 5.55 | 22.22 | — | — | 5.55 |
| Springfield | 56,284 | 19 | 6 | 5.26 | 10.52 | — | — | — |
| Lawrence | 49,996 | 26 | 12 | 19.25 | 7.70 | — | 3.85 | — |
| New Bedford | 47,741 | 22 | 9 | — | 13.65 | — | — | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 39,939 | 14 | 5 | 14.28 | 14.28 | 7.14 | — | 7.14 |
| Salem | 33,155 | 9 | 3 | 33.33 | 11.11 | 22.22 | 11.11 | — |
| Haverhill | 32,925 | 4 | 4 | 25.00 | — | — | — | — |
| Malden | 30,209 | 9 | 4 | — | — | — | — | — |
| Chelsea | 29,806 | 16 | 6 | 18.75 | 12.50 | — | — | — |
| Fitchburg | 29,393 | 4 | 0 | 25.00 | — | — | — | 25.00 |
| Newton | 28,837 | 9 | 3 | 11.11 | 22.22 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,564 | 6 | 1 | — | — | — | — | — |
| Waltham | 22,058 | 7 | 3 | — | 14.28 | — | — | — |
| Quincy | 19,642 | 6 | 0 | — | 16.66 | — | — | — |
| Pittsfield | 18,802 | 4 | 0 | — | — | — | — | — |
| Everett | 16,585 | 1 | 1 | 50.00 | — | — | — | — |
| Northampton | 16,331 | 4 | 0 | — | 25.00 | — | — | — |
| Newburyport | 14,073 | 6 | 1 | 16.66 | 16.66 | — | — | — |
| Amesbury | 10,920 | 2 | 1 | — | — | — | — | — |

Deaths reported 2,746; under five years of age 902; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 317, acute lung diseases 499, consumption 315, diphtheria and croup 119, diarrheal diseases 39, measles 32, scarlet fever 38, whooping-cough 19, typhoid fever 37, erysipelas 10, cerebro-spinal meningitis 12, malarial fever 9, small-pox 2.

From typhoid fever Philadelphia 10, New York 6, Cleveland 7, Boston 4, Cincinnati 3, Providence, Lawrence, Newton and Newburyport 1 each. From measles New York 22, Brooklyn 5, Cincinnati 2, Philadelphia, Boston and Providence 1 each. From whooping-cough New York 9, Cincinnati and Haverhill 2 each. Philadelphia, Brooklyn, Providence, Lowell, Cambridge and Lawrence 1 each. From cerebro-spinal meningitis New York 5, Chelsea 3, Lawrence 2, Somerville and North Adams 1 each. From malarial fever Brooklyn 6, New York 2,

Newburyport 1. From small-pox Philadelphia and Cincinnati 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending April 27th, the death-rate was 18.9. Deaths reported 3,829; acute diseases of the respiratory organs (London) 341, whooping-cough 111, measles 85, diphtheria 50, diarrhœa 39, fever 24, scarlet fever 18.

The death-rates ranged from 10.4 in Croydon to 29.3 in Bolton, Birmingham 17.1, Bradford 16.8, Cardiff 12.7, Gateshead 18.5, Huddersfield 13.6, Leicester 17.2, Liverpool 23.7, London 17.9, Manchester 27.6, Newcastle-on-Tyne 19.9, Nottingham 16.3, Portsmouth 15.5, Sheffield 17.0, Sunderland 19.7.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 4, 1895, TO MAY 10, 1895.

CAPT. RICHARD W. JOHNSON, assistant surgeon, is relieved from duty at Washington Barracks, D. C., and ordered to Fort Huachuca, Arizona, for duty, relieving MAJOR TIMOTHY E. WILCOX, surgeon.

MAJOR WILCOX on being thus relieved is ordered to Fort Schuyler, New York, for duty.

The leave of absence on account of sickness granted MAJOR CLARENCE EWEN, assistant surgeon, is extended three months on account of sickness.

CAPTAIN LOUIS W. CRAMPTON, assistant surgeon, will report in person to the president of the examining board, appointed to meet at Denver, Col., on May 14, 1895, for examination for promotion.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 11, 1895.

S. S. WHITE, passed assistant surgeon, ordered to the U. S. S. "Bancroft," June 8, 1895.

J. W. Baker, passed assistant surgeon, from the "Enterprise" and Recorder Naval Medical Examining Board.

M. W. BARNUM, assistant surgeon, resigned from the Navy, May 7, 1895.

ROBERT BOYD, assistant surgeon, resigned from the Navy, May 8, 1895.

M. C. DREIMAN, surgeon, ordered for examination preliminary to promotion.

H. D. WILSON, assistant surgeon, detached from "Vermont" and to the "Monongahela."

H. D. BEYER, surgeon, ordered to the U. S. S. "Monongahela."

## MASSACHUSETTS MEDICAL SOCIETY.

### ONE HUNDRED AND FOURTEENTH ANNIVERSARY.

The annual meeting will be held at 9 o'clock A. M., Wednesday, June 12, 1895, in the building of the Massachusetts Charitable Mechanic Association, on Huntington Avenue, Boston.

Meetings of Sections will be held in the same building, on the preceding day, Tuesday, June 11th.

### TUESDAY, JUNE 11th.

At 10 A. M., the Fellows of the Society are invited to visit the Massachusetts General Hospital, on Blossom Street; the Boston City Hospital, on Harrison Avenue; the Children's Hospital, on Huntington Avenue, and the Carney Hospital, South Boston.

*The Shattuck Lecture, Cotillion Hall*, 1 P. M.— Dr. Robert T. Edes, of Jamaica Plain. "The New England Invalid."

*Section in Medicine, Banquet Hall*, 2.30 P. M.— Dr. F. W. Chapin, of Springfield, Chairman; Dr. G. G. Sears, of Boston, Secretary. "Modern Views of the Nature and Treatment of Exophthalmic Goitre." By Dr. J. J. Putnam, of Boston. Discussion by Dr. G. B. Shattuck, of Boston. "Home Treatment of Phthisis." By Dr. V. Y. Bowditch of Boston. Discussion by Dr. F. I. Knight, of Boston. "The Diagnosis of Malaria by Means of Examination of the Blood and the Presence of Laveran's Bacillus." By Dr. Philip Kilroy, of Springfield. Discussion by Drs. F. C. Shattuck, W. T. Councilman, of Boston.

*Section in Surgery, Cotillion Hall.*— Dr. J. B. Brewster, of Plymouth, Chairman; Dr. C. L. Scudder, of Boston, Secretary. "Recent Progress in Genito-Urinary Surgery. Treatment of Enlarged Prostate." By Drs. A. T. Cabot and W. S. Watson, of Boston. Discussion by Drs. L. Bolton Bangs, of New York City; Abner Post, Paul Thorndike, G. W. Allen, of Boston, and others.

### WEDNESDAY, JUNE 12th.

*Annual Meeting, Cotillion Hall*, 9 A. M.— Business of the Annual Meeting. "The Etiology of Diphtheria and the Use of Antitoxin." By Dr. H. C. Ernst, of Boston. "The Pathology of Diphtheria." By Dr. W. T. Councilman, of Boston. "The Prophylactic Use of Antitoxin." By Dr. F. G. Morrill, of Boston. "The Preparation of Diphtheria Antitoxin." By Dr. J. L. Goodale, of Cambridge. "The Clinical Use of Antitoxin." By Dr. W. H. Park, of New York City. Discussion by Drs. C. F. Withington, of Roxbury; G. G. Sears, of Boston.

*The Annual Discourse*, 12 M.— By Dr. Alfred Worcester, of Waltham.

*The Annual Dinner*, 1 P. M.— At the close of the discourse, the annual dinner will be served.

### BUREAU OF INFORMATION.

In order to increase the social element of the annual meeting, a Bureau of Information will be established, where members will be given information of any kind which may add to their comfort and pleasure while in Boston.

Due notice of the location, and detailed plans of this bureau, will be furnished later.

### EXHIBIT.

On Tuesday and Wednesday, from 9 A. M. to 5 P. M., there will be an Exhibit, including the usual features.

### COUNCILLORS' MEETINGS.

The Annual Meeting, at 7 o'clock P. M., Tuesday, June 11, 1895; Stated Meetings on Wednesday, October 2, 1895, and on Wednesday, February 5, 1896, at the Medical Library, No. 19 Boylston Place, Boston.

F. W. GOSS, M.D., *Recording Secretary*.
217 Warren Street, Roxbury.

## SOCIETY NOTICES.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.— The Forty-fifth Annual Meeting will be held at Chambersburg, Pa., May 21–24, 1895. WM. B. ATKINSON, M.D., *Secretary*.
1400 Pine Street, Philadelphia.

NEW HAMPSHIRE MEDICAL SOCIETY.— The One Hundred and Fourth Anniversary Meeting will be held Monday and Tuesday, June 3 and 4, 1895, at Concord, G. A. R. Hall, 15 Warren Street. The Anniversary Dinner will be served at the New Eagle Hotel, Tuesday, June 4th, at 1 P. M. Tickets will be on sale at the hall by Dr. C. W. Lovejoy, of the Committee of Arrangements. The Anniversary Chairman, Dr. Robert Burns, of Plymouth, will preside.

GRANVILLE P. CONN, M.D., *Secretary*.

## IN MEMORIAM.
## W. H. FLAGG, M.D., AND S. W. BOWLES, M.D.

At the Annual Meeting of the Hampden District Medical Society held April 16, 1895, the following resolutions were unanimously adopted:

*Whereas*, Drs. W. H. Flagg and S. W. Bowles, both worthy and active members of this Society, have been removed by death,—

*Resolved*, that we highly appreciate the valuable services which they rendered to this Society and the medical profession, and that we hereby express our sympathy for their relatives and families in their severe bereavement.

*Resolved*, that these resolutions be entered upon the records of the Society and that a copy be sent to their families and to the *Springfield Republican* and the BOSTON MEDICAL AND SURGICAL JOURNAL for publication.

MARSHALL CALKINS,
RALPH H. SERLYE,
PHEBE A. SPRAGUE, } *Committee.*

## RECENT DEATH.

EX-SURGEON-GENERAL CHARLES SUTHERLAND died at Washington, on the 11th of May. Dr. Sutherland was born in the city of Philadelphia, May 29, 1829. He entered the army as an assistant surgeon in November, 1852, and served for several years on the plains. He rendered distinguished service during the war, as surgeon with the rank of major. He was medical director of the hospitals at Annapolis in 1864; and from 1864 to the end of the war was purchasing medical purveyor at Washington. In 1876 he attained the colonel's rank, and served at different times as medical director of the military divisions of the Pacific and Atlantic. On December 30, 1890, he was appointed surgeon-general, with the rank of brigadier-general, and served in that capacity until he was retired.

## BOOKS AND PAMPHLETS RECEIVED.

Vaginal Hysterectomy as Done in France. By Edgar Garceau, M.D., Boston, Mass. Reprint. 1895.

# Original Articles.

## REMARKS ON THE PSYCHICAL TREATMENT OF NEURASTHENIA.[1]

BY JAMES J. PUTNAM, M.D., BOSTON.

There is hardly a subject in practical medicine which is of wider interest than the study of the nature and treatment of the degenerative neuroses and psychoses which the latitude of the present discussion will allow us to designate as neurasthenia.

For many of these cases to be sure, a simple and wholesome life of active usefulness combined with the steadying influence of encouragement and good advice, and the various means which we possess for improving nutrition and strengthening the circulation — prominent among which is the external use of water — suffices to secure a reasonable degree of health. Of all these methods, valuable as they are, I do not mean to speak. In other cases — and their number is great — the sympathy, the ingenuity, the intelligence and skill of the physician is drawn upon to its full capacity without being able to bring relief to his patient, and then perhaps — to crown his disappointment or increase his puzzle — the patient goes to an irregular practitioner or becomes a disciple of the Christian Science or Mind Cure, and gets better, for a time at least.

In selecting the *psychical treatment* for this discussion, I do not in the least mean to claim for it a place of undue prominence.

The best physician will always be he whose resources are the most extensive and the best mastered. But of these two conditions the latter is the more important, and I think neither the profession at large nor the neurologists have yet learned to master this branch of therapeutics to the extent that it deserves.

Every intelligent physician who deals with cases of this class can show a good list of successful results, the fruit of conscientious and skilful work on his part; but the methods are not yet so systematized but that we can all profitably compare notes and enrich our own resources by a study of the results obtained by those who have been working in special lines.

There are still too many of these cases that we fail to reach, and one still hears too much said about the impossibility of benefiting certain patients without appeals to their superstitiousness, such as a self-respecting physician should be unable and unwilling to make.

In a sense, I grudge the irregulars every case that they win from us, be they few or many, because I believe that with a deeper knowledge of human nature, a better understanding of pyschology, a wider range of methods and greater skill in applying them, we could cure more of these patients ourselves.

Many patients are neurasthenic because there is no interest which sufficiently absorbs their energy. It is noticeable that fanatics and enthusiasts, even if naturally feeble or occasionally prostrated by sickness, are rarely permanent invalids. The strong attraction of their one interest focuses their powers, and steadies the ill-balanced forces of the mind. The brain is a machine for grinding out work, and if it can be made to do this effectively, even if the work is of a simple order, so that it be engrossing, the patient is sure to be the gainer. Certainly all of us have had some patients for whom enforced or chosen labor has been a great blessing, though from time to time it may have seemed to aggravate their sufferings.

Whatever other means of treatment have been chosen, this then, should be the general aim, to teach the brain to maintain a steady outflow of effective work, within the limits of the patient's powers. If I do not dwell on this species of mental influence at such length as its importance would warrant, it is partly because the principle is familiar, and partly because each patient's conditions vary so much that it would be difficult to lay down practical rules. It is, however, important to remember that the great usefulness of systematic gymnastics for neurasthenics is largely to be explained in this way. Children who have a tendency to neurasthenia can profitably carry this form of training to a high point, and for them, also, the training of the kindergarten and the technical instruction in the schools of higher grade may be made of great service, by developing the sense of power in the direction of constructiveness and the overcoming of obstacles.

Every one is familiar with the remarkable benefit occasionally obtained by the use of the so-called Dyer's method in the treatment of asthenopia. The action of the very gradual increase in the use of the eyes must surely be mainly a matter rather of psychical than muscular training. On somewhat similar principles perhaps, the persistent and careful use of gymnastics, directed by a skilled teacher, can often be made of material service in the treatment of neurasthenic patients.

What is meant by mental treatment, and what sorts of symptoms among the many that are met with in neurasthenia may be considered as possibly amenable to it?

A few years ago these two questions would have been answered in a far narrower spirit than now, and it is not probable that our conceptions are even yet as wide as they will eventually become. Inasmuch as the cortex of the brain is a great projection plane, in Meynert's sense, on which all the processes which occur in the body are represented, so that they may and must form part of the raw material of emotions, ideas, and memories, it is theoretically conceivable that all these processes are in some measure liable to be reacted upon by the operations of the mind. But, without taking advantage of so wide a generalization as this, every one will admit that the investigation into hysteria, and the kindred phenomena of experimental hypnotism, and the study of the clinical rôle played by disorders of the mind in the production of such affections as anemia and jaundice, and a host of others, have greatly enlarged our conception of the influence which this unseen agency may exert.

Hysterical edema, hysterical atrophy, hysterical anemia, and the like, are now considered as symptoms of a disturbed action of what may fairly be called the mind; it is probable that more of the symptoms of neurasthenia are of that origin than would generally be admitted, though the ultimate chemical causes of the neural weakness which underlies the disease very likely affect the whole nervous system and not the brain alone. At all events, many of the worst symptoms of neurasthenia, such as the morbid ideas, the causeless exhaustion, the sense of inefficiency and loss of control and of identity, the tendency to depression bordering on melancholia, the asthenopia and kindred

[1] Read before the Boston Society for Medical Improvement, March 4, 1895.

localized weaknesses, the persistent "associative" pains, are in great part, though perhaps not often wholly, of psychical origin. It is such groups of symptoms as these that I shall have in mind in the following remarks.

The consciousness of any individual at a given moment forms but a small fragment of what may be termed his mind. It consists of the small nucleus of bodily sensations and recurrent ideas, the constant persistence of which is necessary to give the sense of personal identity, and of a certain number of other ideas and feelings which cohere less strongly but form a subconscious background for his thought. Outside of the personal consciousness of the moment there are countless clusters of mental processes which are registering or regulating the movements going on in the vast workshop of the body, and waiting their turn to subserve the interests of the next moment's consciousness. Perhaps, indeed, it may be said that in health, and in proportion to the perfection with which the mind is organized, the consciousness of the moment gains a fulness and background of great value even from mental processes which lie for the most part outside of it. The mind as a whole might be compared to a deep and swiftly flowing river, and the personal or habitual consciousness to an eddy beneath the bank, which forever seeks to change its shape and draw in water from without, yet never wholly loses its identity.

In health there is a certain degree of co-ordination and mutual support between all the vast activities of the mind, binding them to the consciousness on the one hand and to the vital functions of the body on the other; and though these various activities are grouped in clusters which are more or less independent, just as in one stream there may be many eddies, yet no antagonism or interference takes place between them. The healthy man feels himself a consistent character, and can predict what he will do, not only as regards those new exigencies which require logical thought, but also as regards those which depend upon the promptings of all the deeper-lying and subconscious processes with which his mind is stocked. His reactions to the various problems which present themselves are as prompt as the conditions of the case permit, and the attention of his consciousness is at liberty to devote itself, unembarrassed, to the interest of each new question as it arises.

In neurasthenia, and still more in hysteria, this harmony of action, tending to the furtherance of single interests of the individual, one after another, is more or less deeply impaired. The patient's consciousness is no longer permitted to focus itself exclusively upon the main object of his attention, but unrelated ideas and emotions intrude themselves, to the detriment of his flow of thought, just as floating opacities in the vitreous humor of the eye drift over and obscure the field of vision.

I will not pursue this theoretical survey further. I only desire to call attention to the fact that these intrusive ideas and sensations lie partly or wholly outside of the patient's ordinary sphere of consciousness and will. Even when they recur so often as to form almost constant elements of his personal consciousness, the fact that they originated in deeper lying strata of the mind or have become secondarily rooted there makes it almost impossible for him *without special training* to make them objective, or to help himself much in ousting them through any logical process of thought. The patient is a puzzle to himself and his struggles often seem to carry him deeper into the mire. It is the physician's function to aid him in ridding himself of these disturbing elements of both his conscious and unconscious mental life, partly by surrounding him with influences which will address themselves directly to the subconscious strata of the mind where these morbid processes are going on; partly by teaching him to use his will, indirectly, in displacing them.

It is this notion of the possibility of an outsider's assuming to exert an influence over regions and processes of the patient's mind which he himself is wholly unable to reach and explore, that seems to many persons so foreign, so obscure, and so unreasonable, and yet it is a notion of fundamental importance for securing to the physician the necessary confidence for dealing with neurasthenic patients.

It is also very desirable that the physician should form an accurate physiological conception of the processes by which thoughts are made useful as therapeutic agents, so far as this is possible. A thought is the outcome of a physiological stimulus and becomes a stimulus in its turn, for good or evil.

If it is conceivable that by words or by other forms of adequate stimulus (for a word may be an adequate stimulus just as well as a blow) we can arouse, *within* the realm of consciousness, thoughts and sentiments — or, in physiological language, nerve currents — favorable to the physical and mental health, it is equally conceivable that, by similar stimuli, we should be able to arouse similar images or currents in the regions of the mind lying *outside* the ordinary realm of consciousness. In certain forms of hysteria, indeed, we sometimes have to deal with two definite personalities for each single patient; and even in the case of neurasthenia this is practically true, for the "moods" of the neurasthenic patient are such as to change his characteristics to a high degree. Though ordinarily critical, distrustful, and suspicious to a degree that he cannot control, yet there are times when these characteristics are laid almost wholly aside.

It is under the latter circumstances, that the most effective work is to be done in the way of introducing ideas or sentiments of hopefulness and self-confidence, or of familiarizing the patient with the image of himself freed from harassing thoughts and feelings, and with his nutritive processes in better train. It is, too, in the hope of eventually influencing these deeper strata of the mental life, which form such an important background for the habitual consciousness, that we should stand ready to repeat our encouragements over and over under the same or new forms, or to exert a thousand influences of indirect kinds, some one of which may be successful in planting these sentiments of hopefulness where they cannot easily be dislodged, and where they may act to counteract the emotions and processes adverse to health. The choice of such influences is apt to be determined by the instinct or experience of the physician. This must perhaps always be so; but I think it will be a gain, especially for those physicians in whom these instincts are not strongly developed, to systematize them, and to study the principles on which they rest.

(A) The principal means which have been used to *help the patient exert his own reasoning and will* in overcoming his disease are the following:

By demonstrating to him, with all the patience and

repetition that is necessary, something of the nature of his disease, the fact that his symptoms — his morbid fears, for example — do not necessarily entail the gloomy outlook which he fears, and that if he can change his point of view, can look on himself as capable of better things, and can learn to look in the right direction for the expected good, it will be seen. It is, of course, only now and then that this attempt succeeds; but the better hope is that, if our demonstration is really well thought out, and is presented again and again under different forms, some argument or word may make a relatively deep impression, and *if it happens to coincide with a wave of improvement*, will come to mind again as one of the re-enforcing associations of this latter state and give it a logical cast. In this way it often happens that the physician's logic gets credit which it does not strictly deserve; but nevertheless it does occasionally seem that an intelligent patient is led by a powerfully presented or thoroughly grounded argument to make a strong and successful effort to get the better of his own delusive reasoning.

Dr. Edward Cowles has exerted himself to develop this method, and has succeeded in several cases, even where a good deal of melancholic depression was already present.[2] It is unquestionably important, if not essential, for success that a definite and sufficiently logical plan of exposition should be followed. Even if this is not clearly understood by the patient in exactly the same sense as by the physician, the presentation can hardly fail to increase confidence in the physician for the thought and study which he has given the case. Usually the anxious patient is keen to detect some flaw in the reasoning, but where the emotional state is not too deep and the symptom is an isolated one, it is well known that success is more common. Abundant instances of this are on record, and a striking example is given by Dr. Prince in his interesting discussion of the "association neuroses" (the use of an artificial rose to cure a fancied imperative tendency to sneeze at the smell of roses).

A great deal is gained if the patient can be taught to really conceive of himself as capable of being a different person; for different he must be, as a rule, in habits of mind, temperament, and often even habits of daily life, if he is to make any material improvement. One reason that this is difficult is that the patient finds for the moment a positive relief in acting out his morbid instincts and indulging his morbid thoughts, just as persons with morbid impulses to repeat words or acts and the like, find for the instant a certain satisfaction in doing so, though it is a satisfaction which entails a new torment. There is a certain temporary relief to many persons in assuming the mental habits of a Mrs. Gummidge, but in the long run it is a drain upon the nervous strength.

It is interesting to note that persons who have been exposed to some powerful influence, such as a deep personal experience or some religious change of sentiment, and have thus had effected rapidly the sort of change in temperament which the physician tries to bring about slowly, are apt instinctively to show their own recognition of their new life by adopting simpler forms of dress or by changing their habits and associates, and, in the reverse sense, it may sometimes be possible to favor the mental change by adopting primarily some outward expression consonant with the desired order of things.

It is a matter of immense importance and often entirely possible, to deliberately adopt and persistently maintain the demeanor of cheerfulness and hopefulness. It is easier to act a new rôle in a new and appropriate dress. Prof. William James has dwelt upon this point in his studies on the nature of emotion.[3] It is for this reason, in part, that frequent changes of surroundings, if only for a short time, are often of such benefit to neurasthenic patients.

It must, however, be remembered that it is infinitely more difficult, and requires infinitely more pains and persistence to effect an alteration in character than an alteration in mood. *Cœlum, non animum, mutant, qui trans mare currunt.* The physician must distinguish between the cases that can really be helped in this way, and those which might even be made worse. The patients of the latter class, if they are really intelligent enough, can often do best by looking their difficulties clearly in the face and striking for a more radical improvement which shall be associated with the growth of character and will, and the founding of the really soundest and best habits of daily life.[4]

It is better, where the facts justify or can be expected to justify the assumption, that a patient should learn not to look on himself as an invalid, but, rather, as a person who is well, but who must have a shorter working day than some of his neighbors, and who realizes that he has his health at the price of certain sacrifices which he is ready to make.

Some neurasthenic patients suffer very much from a sense of disgrace at being ill with a condition of nervous weakness; and I cannot but think that this is partly due to the existence in the community at large of a barbarous sentiment of this sort like that which used to be held with regard to insanity. If the patient can be persuaded that he is no more responsible for an attack of neurasthenia than for an attack of gout, provided he is doing his best to get rid of it, and if in this way he can be led to take a somewhat objective interest in seeing what he can make of himself, an important point will have been gained.

A special cause of distress to many of these patients is the fear of insanity, to which they think their symptoms are tending. Fortunately, it usually lies in the power of the patient and his physician to make this fear a groundless one; and no effort tending to this end should be spared, especially in the early stages of a neurasthenia which is likely to become chronic. In this, as in every part of the treatment, it is essential to form powerful associations in the mind, which have a strong sense of hopefulness and cheerfulness as one of their elements; hopefulness associated with signs of improvement which the patient should be systematically taught to recognize; hopefulness associated with definite logical processes through which the patient has been taught to disprove his own morbid reasoning; and with active and engrossing occupation. Van Eeden says that he has

[2] See also Lange, Les émotions; and Féré, La pathologie des émotions.

[3] See also Prof. Josiah Royce's very interesting analysis of the case of John Bunyan, in Philosophical Review, 1894.

[4] "In the Will work and acquire, and thou hast chained the wheel of Chance, and shalt sit hereafter out of fear from her rotations. A political victory, a rise of rents, the recovery of your sick or the return of your absent friend, or some other favorable event raises your spirits, and you think good days are preparing for you. Do not believe it. Nothing can bring you peace but yourself. Nothing can bring you peace but the triumph of principles." — *Emerson, Self-Reliance.*

found it of service to recommend to patients harassed with morbid ideas to study some foreign language and to repeat their lessons to themselves when alone, as a distraction from their thoughts; and the same writer speaks of the fact that the artist, William Blake, got rid of his visions by painting them, thus making them an object of objective interest. Others have similarly helped themselves by studying and describing their morbid fancies.

(B) Methods of influencing the patient's mental state *without the direct intervention of his own will.*

It is needless to point out that the most striking of these methods are those which have been discussed under the name of hypnotism. I should, however, be glad if I could show that the hypnotic methods used in practical therapeutics by the best men have nothing abhorrent in them, and are only a further development of various means of treatment familiar to every one.

These methods may be looked at from two points of view: first, as increasing the personal influence of the physician; second, as increasing the susceptibility of the patient.

Every one who deals with neurasthenic patients knows how much the *personal influence* of the physician counts for in their treatment; and knows, too, that the gain of this personal influence is not without its objectionable side. It furnishes opportunities to the charlatan as well as the conscientious physician; and it is a truism to say that the latter is under obligation to use the influence which he gets, solely for the benefit of the patient and for his best benefit. He should feel it his responsibility to leave the patient not only improved in health but with a stronger character, and so far as practicable free from a sense of dependence upon him. It is the duty of the physician, as Madame de Stäel said of the ideal legislator, to make himself unnecessary.

Besides the many and almost indescribable means at the physician's disposal for increasing his personal influence, there is one of some slight value which is secured to him by the growing habit of the physician's dispensing his own medicines, at least to a certain extent. It is not a good thing for a nervous patient to carry off a prescription which he can mull over and criticise at his leisure and perhaps get refilled or hand to his friends as if he were himself the doctor. The physician's medicine ought, logically, to be, like his advice, a part of his personal armamentarium, and if it brings him a little additional glamour in the eyes of the patient, there is gain for both, provided the doctor is an honest man.

More important than the therapeutic influences already alluded to, if only because more capable of systematization, are the means — to use a conventional phrase — of increasing the patient's *suggestibility* to the beneficial influences of every sort by which the physician seeks to surround him. In general, this is done either by taking advantage of states in which the consciousness is favorable to the particular influence and lends it its support, or else states in which the conscious attention is otherwise absorbed, or temporarily in abeyance. Under the latter circumstances an impression can sometimes be made upon the mind which may be so strong as to become a permanent working force, affecting nutrition on the one hand and modifying the current of thought on the other hand. The new influence gets into the chambers of the mind by the back door, but for that very reason is able to entrench itself the more strongly, because the owner of the house hardly realizes what the intruder is about until his presence has become so familiar that he passes for an assured member of the family. To use another simile which I have found very useful, let us suppose that we wish to drop a marble down through a funnel. So long as the funnel is kept in motion, the marble will roll round and round in the brim; bring it to rest and it will fall through. In the same way, if it be desired to drop an effective idea into the deeper strata of a patient's mind, his critical consciousness must first be shunted out, or the idea will be rolled about and torn to pieces in the cogwheels of his habitual and false logic.

It is well known that many healthy persons may be made, in an abstracted mood, to perform quite complex mental acts almost automatically, also that powerful impressions made on any one, especially in youth, may excite antipathies or prejudices which the reason, even years afterwards, is helpless to dislodge.

It is in this way that "fixed" ideas become such dominant forces in men's lives. Some of these fixed ideas are habitually present to consciousness, though even then they have their roots tenaciously intertwined with mental processes over which consciousness never had or has ceased to have authority.

In other cases, and especially with hysterical patients, the fixed ideas are known to consciousness only through the acts to which they prompt. If, under these circumstances, it be considered a misnomer to speak of these mental processes as "ideas," or as evidences of a "subliminal consciousness" (Myers), or of "unconscious cerebration" (Carpenter), at least it will be admitted that these words denote physiological processes occurring in the brain and leading to such and such results, and that for exciting such physiological processes, words falling on the ear, or any of the more subtle modes of human converse may be an adequate stimulus. In other words, there is nothing unreasonable in the notion that mental processes of which the patient is unconscious should be induced or modified by "verbal suggestion."

The working out of the methods for taking advantage of susceptible or "suggestible" moments for the implantation of ideas or initiating physiological processes favorable to mental and physical health, either with or without the conscious co-operation of the individual, has been carried on by educators, psychologists, irregular practitioners, and by regular physicians; by every one, in fact, with whom it has lain deeply to exert a strong influence over his fellows.

A large part of the study of these methods has been conducted wholly unsystematically, and often for selfish ends, but may still be psychologically of interest.

The physicians who have had the most success in the treatment of neurasthenic cases have gained it by working up special methods, which although dissimilar in detail have been from the very nature of the case similar in principle. Some of them have bent themselves to invent new ways of diverting their patients' morbid energies into channels of active work, or of keeping them under the healthy influence of an intelligent nurse, and prescribing with care the details of their daily life; while for a certain class of patients the plans worked with so much skill by Dr. Weir Mitchell, have been studied and utilized with profit by physicians to whom this method was congenial.

Putting aside the influences directed to the improvement of the nutrition, it may be said that all these methods have one feature in common.

Whether it is sought to make the patient realize that he can after all do some effective work, or learn to be cheerful, or learn to accept, temporarily, the physician's will for his own, it is always found advisable to place him under special and peculiar conditions to get the best effect. Either he is isolated, or he is put to bed, or he is kept under the new and carefully chosen influence of another individual. In other words, to use the terms of the day, it is sought to influence him in "suggestible" or susceptible moments of his life.

All those who have studied the literature of this subject are aware that not only the artificial but the natural sleep, or half-sleep, sometimes brings with it an increased receptivity of verbal suggestion. I do not know to what extent this has been utilized, but I was interested to find, one day, that an intelligent nurse was using this method, either following her own instincts or led by some tradition, for the sake of making a child sleep better.

It is, however, the modern students of hypnotism and hysteria and kindred subjects that have undoubtedly carried on these inquiries the most deeply and systematically. There is no doubt that the methods of the school of Nancy are invaluable for those who have to use them properly, and practically free from danger under the same conditions. The physician's personal influence over the patient is increased, but so far from this in itself tending necessarily to enslave the patient's will, it may be made, as in health, to strengthen his will and character if the physician's efforts are intelligently directed to this end.

There is, however, a strong prejudice in the minds of some of the best and soundest people in the community against the use of anything which goes under the name of hypnotism, as seeming to imply the reign of superstition and mysticism, and a falling off from the sound principles which underlie the best mental health. This prejudice is founded on a misconception, but it must be respected, and yet it must not be allowed to interfere with our giving such persons the full benefit of our skill any further than is necessary. Very often it is possible to secure the first degree of the hypnotic sleep, or enough increase in susceptibility to be useful, without mentioning the word hypnotism. If a patient comes to us already coached in hypnotic doctrines, it is often an excellent plan to talk it over with him further; and there are many cases where it is desirable to do this in any event. In general, however, it seems to me a mistake for the physician to assume that a patient can really understand so complex a subject unless when presented in the simplest way; and I think it is better for him to come down to the patient's level and to explain his intentions briefly and in popular language, than to use terms which may, for all he knows, carry mysterious or terrifying associations. All that is necessary is that the patient should give his full and intelligent co-operation to promoting the induction of quiet or sleep; and if he has confidence in his physician, it can often be made sufficiently clear to him that this is a suitable thing to do.

To illustrate my meaning more fully, I will give briefly the case of a lady who has been suffering for many years from a distressing nervous cough which attacked her on the occasion of every embarrassment, even the slightest. I persuaded myself very soon that no treatment but one of a psychical character would help her, and was ready, if it should prove necessary, to propose to her hypnotism, pure and simple. Before doing this, however, I determined to secure the quiet and suggestibility which often attends, or more strictly speaking, can be made to attend the use of static electricity. I told her that I was going to give her a treatment addressed to quieting the general mental irritability from which she suffered, and that at the same time her cough, which was a sort of nervous trick, would become less troublesome; that I wanted her to relax her muscles and her thoughts, and let herself sink into a state of restfulness, which would then stay with her through the day. The result was eminently satisfactory. She made in all ten visits, and before these were over her cough had become so much better that she considered it practically cured, while her general conditions likewise improved. The word hypnotism was never mentioned, and though I am not sure that she went actually into the stage of not being able to open the eyes, yet all the abstraction that I needed was obtained, and that without the necessity of explanations on my part, or of making her an adherent and perhaps prophet of hypnotism, which she would surely have misunderstood. I have treated many other patients in this same way with excellent effect, sometimes using more, sometimes less, in the way of verbal suggestion. I recall especially two cases of asthenopia of long standing, which were greatly benefited.

It often happens that patients fall actually asleep under the agreeable sensations and monotonous sounds attending the application; and although it may well be that for the best "suggestive" effect the operator must take special pains to keep the patient's mind in touch with his own during this process, yet there would seem to be no reason why this should not be done if necessary. On the other hand, the treatment often carries its own suggestion, and the necessity for the physician to intrude his own personality is largely obviated. I am myself in the habit of asking an assistant nurse to carry out the applications, so far as possible, and consider that if the patient is thus led to take a more matter-of-fact view of this process, it is so much the better, provided the desired end is gained.

In this way I have treated with good though not invariable success a number of cases of neurasthenia, and several cases of the milder forms of melancholia. How much the electricity in itself has contributed to the result, I do not feel able to say; but a little light may perhaps be thrown upon this point by some observations on temperature to which I shall refer in a moment. I do not vaunt this method as making hypnotism unnecessary, for both my experience and judgment would lead me to think that where it is a question of dealing with a serious case, requiring a high degree of personal influence or of suggestibility — suggestibility, that is, with special relation to the physician — more can be accomplished through the methods of Nancy, than in any other way, provided the physician is skilled in their use.

It is often said that neurasthenics are not hypnotizable, but the facts do not bear out this view, although success often implies more time and patience than most physicians can give. These statements are borne out by the elaborate statistics of Schrenck-Notzing based on the analysis of 228 cases treated

by a limited number of the best observers.[5] About 7.3 per cent. were shown to be non-influenceable; about 32 per cent. influenceable only in slight degree; nearly 61 per cent. susceptible of deeper degrees of influence. As regards the result, about 31.6 per cent. received but slight benefit or none; nearly 37 per cent. were considerably relieved; 31.6 per cent. were reported as cured.

The detailed histories illustrating the psychical treatment of the psychoses of this class which are given by Van Renterghem and Van Eeden[6] are full of interest, since they enable us to see the progress of the cases, their exact character, and force us to recognize that in some of them the treatment only reinforced the patient's efforts in his life-long struggle with an incurable malady.

The details of their treatment, which is by no means confined to the use of verbal suggestion, but are those of the broad-minded physician as well, are worthy of special note. To make up for the slight degree of induced suggestibility they sometimes continued the treatment through one or two hours, the patient lying quietly with closed eyes and being talked to from time to time in an appropriate manner. I cannot but refer in this connection to an important suggestion of Bernheim's, to the effect that a hypnotized patient is not a totally changed person, much less changed into a mere lump of clay, and that frequently it is necessary to address him with the same forms of argument that would have been used in his waking state. It is also important to remember Forel's caution, that the hypnotized patient is a keen mind-reader and may readily detect a false note in the physician's treatment. If he does not detect it to resent it, as he might do if appealed to with sentimental terms, or as a child, or an inferior person, and the like, then he may detect it and accept such terms as appropriate, to the injury of, we will say, his subliminal self-respect. It is not to be forgotten that the physician is a dual or complex person as well as the patient, and he owes it to the latter to have a sharp lookout on the workings of his own subconscious personalities, which are to be brought into such close contact with those of his subject It is this sort of thing rather than anything more gross, that seems to me to constitute the true danger of modern hypnotism. The physician's personal influence is heightened, and if it is not sound the patient may detect the fact to his own disadvantage, in spite of the verbal suggestion which is made to him.

The principal good effect to be looked for from the psychical treatment of neurasthenics is, by general acknowledgment, an improvement in hopefulness and the general emotional background of the thought and the relief of certain symptoms. The attempt has sometimes been made to go further than this, and, after patiently unravelling the web of false logic which the patient's fears have woven, and tracing back his fixed and morbid thoughts to their original source, to neutralize this primal mental conception with the aid of the hypnotic sleep.

It is well known to all students of the subject that Janet and Breuer and Freund have published remarkable cases of relief from fixed ideas in *hysteria*, obtained through this method; but I doubt whether we can in strictness admit that the same process is likely to occur with neurasthenic patients, whose mental machinery and its disorders are more complex than those of the hysteric. It is legitimate to make the attempt, and probable enough that the patient would be relieved, but in many cases a close critic might say that the patient had probably only lent himself to the belief that the cause of his unhappiness had been unearthed, with the half-whispered hope that he might thus be cured.

In the course of the treatments with static electricity I have been much interested in studying the changes of temperature which occurred, being led to do so through interest in the extended observations of like character made by Dr. W. J. Morton of New York.

Dr. Morton had found that the temperature of neurasthenic patients was generally subnormal, though sometimes above the normal, and that under an electrical treatment it usually swung, in either case, towards the normal line; and he was inclined to attribute the change to the tonic action of the electricity upon nutrition.[7]

I have observed the temperature in a limited number of cases, during applications of static electricity (breeze, with enjoined rest), and I have also studied the effects of a modified suspension treatment in cases of locomotor ataxia, of massage, and of spurious electrical application, the patient being placed in the chair as usual and enjoined to relax the muscles and close the eyes yet without being connected with the plates of the machine, which, however, were put in motion as usual.

The results were as follows: The temperature in a case of exophthalmic goitre, with nervousness and debility, was either unaffected, or, what was more common, rose from a few tenths of a degree to a degree, but on several occasions when no electricity was actually given the result was the same.

| | Temperature | | Pulse | |
|---|---|---|---|---|
| | Before. | After. | Before. | After. |
| March 11 | 98 | 99 | 150 | 154 (½ hour later, 140) |
| " 13 | 99 | 100 | 128 | 118 |
| " 15 (no elec.) | 99 | 99 | 128 | 128 |
| " 20 (no elec.) | 98 | 98 | 112 | 104 |
| " 22 | 99 | 99.8 | .. | .. |
| " 27 (no elec.) | 98.4 | 99.8 | 125 | 123 |
| " 29 | 98.8 | 99.3 | 125 | 124 |
| April 1 (no elec.) | 98.6 | 99.9 | 124 | 118 |
| " 3 | 99.8 | 100.6 | 134 | 129 |
| " 5 (no elec.) | 99.2 | 101.2 | 138 | 134 |
| " 10 | 100 | 101 | 130 | 130 |
| " 12 | 99 | 101 | .. | .. |

In the case of a boy with a slight chronic chorea the figures were as follows:

| | Temperature | | Pulse | |
|---|---|---|---|---|
| | Before. | After. | Before. | After. |
| March 28 | 98.8 | 99.6 | 93 | 80 |
| April 1 (no elec.) | 99 | 99.4 | 78 | 76 |
| " 4 | 98.6 | 99.2 | 78 | 75 |
| " 8 | 99 | 99.2 | 80 | 78 |
| " 11 (no elec.) | 99 | 99 | 78 | 80 |

To judge from these two observations there would seem to be some doubt whether it is the action of the electricity in itself that causes the elevation of temperature, and not rather some more subtle influence on the nervous system, which can be exerted in various ways.

[5] Ein Beitrag zur Psychischen und Suggestiven Behandlung der Neurasthenie, 1894.

[6] Psycho-Therapie, Paris, 1894.

[7] Transactions of the Electro-Therapeutic Association, 1893.

For the sake of control I give a summary of the temperatures taken before and after the treatments by modified suspension in cases of tabes, partly at the Massachusetts General Hospital, partly at my private office. These observations led me to note, incidentally, the interesting fact that, occasionally, in tabetic patients, the temperature is regularly very low. In one case the highest (morning) temperature that I could get, during the period of observation, was 98.2° F., with five minutes' exposure of the thermometer in the mouth. Generally it ranged from 97° to 97.8°, and after one treatment it dropped to 96.5°. In another case the initial temperature (taken at about 10.30 A. M.) was on one occasion 96.4°; and that after treatment, 96.2°.

There was no regularity as to the direction in which the changes occurred, nor could it be said that, as Dr. Morton's observations seemed to indicate, the deviation was regularly towards the normal line. The amount of change varied from nothing to .11° F., but changes of .4° to .6° were common.

This is not the place to discuss the psychical treatment of tabes, and I will merely say in passing that it is to this influence that I have been inclined to attribute the favorable effect of the stretching treatment in several cases.

It is, I think, certain that just as patients with sclerosis and organic degenerations are liable to exhibit more or less tendency to neurasthenia and hysteria, so the same class of patients often have more power to counteract some at least of their symptoms than they are aware of or can voluntarily command.

I have recently had a patient, a young girl, with diffuse sclerosis of the spinal cord (verified by autopsy, after death from an intercurrent disease), whose power of getting about was very materially increased through the mental aid of a skilful treatment by Dr. Hamilton Osgood.

In conclusion, I wish to say a word about the "Mind Cure" and "Christian Science" movement, which seems for some reason to have found a safe anchorage in our community. Although, in general outline, this is only the re-echo of old histories, yet such movements get a special tone from the characteristics of the generation and community in which they occur; and I have been greatly interested in the observations which I have made during the past few years.

It has seemed to me noticeable that patients of a simple and impressionable and at the same time not critical disposition, may become more sober, serious, and independent, and far more likely than before to count as figures instead of ciphers in the world. If they are sincere, they are apt to become fanatical for their new doctrines though not necessarily intolerant of those of others. If their critical instinct is a little stronger they are likely to suspect that they have bartered a part of their mental independence for the sake of their recovery.

Another interesting fact is, that besides the improvement in spirits and hopefulness, and what might be called moral regeneration, there are often certain by-products, as one might say, of this treatment, which are noteworthy, especially because they are liable to appear under any treatment of analogous kind, even when not made the subject of verbal suggestion. Such are the relief of constipation and menstrual pain, and improvement in the general nutrition. It is also noteworthy that in many instances the whole treatment is carried on, not only without specific suggestion, but without even conversation of any kind between the patient and the operator. The two simply sit side by side for a sufficient length of time for the production of the required state of mind on the part of the patient, who then takes his leave without a word. A reasonable theory to account for the good effect of the treatment is, that the patient, whether he starts in a receptive mood or not, finds some day, perhaps through the operation of outside causes, that he is better, and at least suspects that the treatment is having its mysterious effect. The seeds of hopefulness and confidence which are thus implanted so regulate the subconscious forces of the mind that the gain becomes steady and progressive.

## HEAT PROSTRATION. AN ANALYSIS OF ONE HUNDRED CASES OCCURRING IN THIRTEEN CONSECUTIVE YEARS.[1]

BY CHARLES F. WITHINGTON, M.D.

The dangers arising from heat prostration affect most particularly that portion of the community which is obliged to work at all times, irrespective of weather and in exposed situations, — in other words, exactly the class of persons for whom a hospital is especially designed. Hence, probably, a larger proportion of the cases of sunstroke and heatstroke which occur in the city are brought to the City Hospital than of any other accident to which the community is liable. It has seemed, therefore, useful to collect some facts from the hospital records bearing upon insolation. The records of the various medical services have been examined from the year 1882 to 1894 inclusive, and all cases of heat prostration tabulated. These numbered a little over a hundred, but after rejecting a very few in which the evidence was not perfectly satisfactory as to the nature of the illness, or where the records were incomplete, there remained exactly one hundred well-marked cases of insolation upon which the following report is based.

As was, of course, to be expected, the male sex was affected in a vastly preponderating degree. There were 95 males and five females. The oldest patient was 70, and the youngest 19, the average age being about 30, and representing that of the most laborious portion of the community.

The time of day at which the attack occurred was deemed of sufficient interest to be noted, and it appears that most of the cases happened in the afternoon. Fifty-two are recorded as occurring after noon, as against 15 in the forenoon, three at noon, and one in the night. Two to three P. M. represents the most frequent hour of the day, as would be natural, after several hours of heat have overcome the resisting capacity of the organism.

The great variation in a number of cases of insolation in consecutive years is illustrated by the following table:

Cases by Years.

| | | | |
|---|---|---|---|
| 1882 | 4 | 1890 | 2 |
| 1883 | 8 | 1891 | 5 |
| 1884 | 8 | 1892 | 16 |
| 1885 | 3 | 1893 | 9 |
| 1886 | 2 | 1894 | 14 |
| 1887 | 19 | | 100 |
| 1888 | 9 | | |
| 1889 | 1 | | |

[1] This paper will appear in the Boston City Hospital Reports, Sixth Series.

The distribution of the cases as regards the date of their occurrence is shown by the following table, in which is incorporated also the meteorological facts of maximum and minimum thermometer, and the mean humidity. These data are furnished through the kindness of Mr. J. W. Smith, Local Forecast Officer at Boston, from the official records of the United States Weather Bureau:

| Date. | No. of Cases. | Maximum temperature. | Minimum temperature. | Mean relative humidity. |
|---|---|---|---|---|
| July 9, 1882 | 1 | 87 | 65 | 69 |
| " 27, 1882 | 1 | 98 | 68 | 56 |
| " 29, 1882 | 1 | 92 | 68 | 59 |
| Aug. 9, 1882 | 1 | 89 | 68 | 67 |
| June 6, 1883 | 1 | 91 | 65 | 82 |
| July 4, 1883 | 1 | 96 | 64 | 68 |
| " 6, 1883 | 1 | 96 | 69 | 67 |
| " 7, 1883 | 1 | 96 | 74 | 63 |
| " 12, 1883 | 1 | 87 | 59 | 71 |
| " 16, 1883 | 1 | 78 | 62 | 87 |
| Aug. 24, 1883 | 1 | 82 | 68 | 53 |
| June 6, 1884 | 1 | 89 | 63 | 65 |
| Aug. 18, 1884 | 1 | 94 | 68 | 82 |
| Sept. 5, 1884 | 4 | 90 | 71 | 61 |
| " 6, 1884 | 1 | 88 | 66 | 61 |
| " 10, 1884 | 1 | 94 | 71 | 75 |
| July 22, 1885 | 1 | 86 | 67 | 60 |
| " 25, 1885 | 1 | 91 | 73 | 76 |
| Aug. 13, 1885 | 1 | 86 | 73 | 80 |
| July 8, 1886 | 1 | 81 | 70 | 62 |
| Aug. 10, 1886 | 1 | 86 | 64 | 62 |
| May 10, 1887 | 1 | 86 | 48 | 51 |
| " 24, 1887 | 1 | 77 | 64 | 76 |
| July 2, 1887 | 5 | 95 | 72 | 63 |
| " 3, 1887 | 1 | 88 | 71 | 76 |
| " 13, 1887 | 4 | 92 | 66 | 63 |
| " 25, 1887 | 1 | 87 | 74 | 75 |
| " 26, 1887 | 1 | 84 | 68 | 86 |
| " 27, 1887 | 1 | 78 | 62 | 91 |
| Aug. 1, 1887 | 2 | 80 | 70 | 74 |
| " 9, 1887 | 2 | 77 | 58 | 65 |
| June 7, 1888 | 1 | 81 | 56 | 73 |
| " 11, 1888 | 1 | 81 | 61 | 66 |
| " 22, 1888 | 1 | 88 | 55 | 79 |
| " 23, 1888 | 2 | 96 | 69 | 66 |
| " 24, 1888 | 1 | 78 | 57 | 88 |
| July 3, 1888 | 1 | 74 | 56 | 56 |
| Aug. 2, 1888 | 1 | 87 | 61 | 58 |
| " 18, 1888 | 1 | 84 | 68 | 67 |
| July 30, 1889 | 1 | 85 | 72 | 90 |
| " 31, 1890 | 2 | 95 | 76 | 74 |
| June 15, 1891 | 1 | 95 | 67 | 52 |
| " 16, 1891 | 2 | 96 | 73 | 52 |
| Aug. 12, 1891 | 1 | 96 | 72 | 80 |
| " 25, 1891 | 1 | 88 | 74 | 80 |
| June 13, 1892 | 2 | 94 | 72 | 59 |
| " 14, 1892 | 2 | 96 | 74 | 66 |
| July 13, 1892 | 2 | 91 | 70 | 73 |
| " 14, 1892 | 1 | 87 | 72 | 70 |
| " 25, 1892 | 2 | 94 | 73 | 69 |
| " 26, 1892 | 3 | 96 | 74 | 62 |
| " 27, 1892 | 2 | 93 | 72 | 47 |
| Aug. 9, 1892 | 1 | 89 | 71 | 78 |
| " 10, 1892 | 1 | 94 | 76 | 66 |
| June 5, 1893 | 1 | 91 | 65 | 72 |
| " 6, 1893 | 5 | 90 | 73 | 78 |
| " 14, 1893 | 1 | 70 | 58 | 96 |
| " 15, 1893 | 1 | 82 | 66 | 87 |
| Aug. 25, 1893 | 1 | 93 | 68 | 71 |
| June 16, 1894 | 3 | 92 | 66 | 68 |
| " 17, 1894 | 2 | 95 | 72 | 55 |
| " 22, 1894 | 1 | 88 | 66 | 70 |
| " 23, 1894 | 2 | 94 | 72 | 58 |
| " 26, 1894 | 1 | 88 | 66 | 84 |
| " 28, 1894 | 1 | 87 | 69 | 71 |
| July 2, 1894 | 1 | 86 | 72 | 74 |
| " 20, 1894 | 3 | 95 | 72 | 65 |
| " 21, 1894 | 1 | 87 | 65 | 74 |
| Aug. 8, 1894 | 1 | 90 | 67 | 67 |

From the foregoing table it is seen that the earliest date of any sun-stroke was May 10th, and the latest August 25th.

The following extracts from the Daily Journal kept at the Boston office of the Weather Bureau, are also contributed by Mr. Smith, and refer to dates which were particularly prolific in heat strokes:

September 5, 1884, "weather generally clear, and very hot; wind from west or south-west." July 2, 1887, "very hot and clear; wind west all day." June 13, 1892, "continued high temperature, very warm, but owing to the low humidity, between forty and fifty per cent. not so oppressive as otherwise would be." June 14, 1892, "slightly higher temperature and very hot. The extreme heat caused many cases of prostration and sun-strokes." July 25, 1892, "partly cloudy day, with very humid atmosphere and high temperature." July 26, 1892, "highest temperature recorded thus far this summer; much lower percentage of moisture in the air (forty-four per cent. at 3 P. M.)." July 27, 1892, "continued high temperature, less moisture in atmosphere than for several days past." June 6, 1893, "high temperature; numerous prostrations from heat."

The relative humidity, it should be said, is taken regularly but twice a day, so that a true mean is difficult to get at. Still, for our purposes the average answers very well.

In only 73 of the cases does the history show whether the heat-stroke was due to direct exposure to the sun or not. Of these, about two-thirds, or 51 cases, were direct, and 22 were indirect. In the former category were, naturally, many laborers upon the streets and in ditches and sewers. There were half-a-dozen teamsters, some of whom were stricken while on their wagons. One, it is worth noting, drove an ice cart. Hod-carriers, coal-heavers, peddlers, masons, carpenters, quarrymen, farmers, etc., made up most of the remainder. Of course, a number of the direct cases occurred in persons not working, but walking on the streets.

Among the indirect cases were three out of the five women. These were employed respectively as cook, worker in a steam laundry, and dish-washer in a saloon. Among the men no indoor occupation proved so liable to heat-strokes as work in sugar refineries, there being five cases among this class of workmen. Iron-foundry men, bakers, stokers, stablemen, and plasterers were also overcome by heat without direct exposure to the sun's rays. A night watchman was found unconscious in the morning in his factory, having had to make the rounds of the boiler and engine room, dry-house, etc., in some of which the temperature was known to have been on the night in question 93°.

The following table shows the maximum temperatures recorded while the patient was in the hospital, with the results as regards recovery for each degree of temperature:

| Temperature | | | | |
|---|---|---|---|---|
| 111 or above | 3 | deaths, | 0 | recoveries. |
| 110—111 | 4 | " | 0 | " |
| 109—110 | 6 | " | 6 | " |
| 108—109 | 6 | " | 5 | " |
| 107—108 | 3 | " | 5 | " |
| 106—107 | 1 | " | 4 | " |
| 105—106 | 1 | " | 3 | " |
| 104—105 | 0 | " | 5 | " |
| 103—104 | 2 | " | 3 | " |
| 102—103 | 0 | " | 3 | " |
| 101—102 | 0 | " | 1 | " |
| 100—101 | 0 | " | 6 | " |
| below 100 | 0 | " | 27 | " |

The highest temperature recorded in any patient was 111.5° by rectum. The highest temperature in any patient who survived was 109.5°. Both the patients who died having had a temperature of 103°–104°, probably had uremia, though there was undoubted evidence of insolation being the immediate cause of death. Probably some of the patients who are re-

corded as having a low temperature (100° or less) had had a considerably higher temperature which had begun to fall prior to their reception into the hospital.

As to the mortality in general, of the 100 cases, 28 died and 72 recovered. All of the deaths except the two complicated with uremia just referred to, occurred in cases with a temperature above 105°. Several of the patients were moribund when they entered.

Loss of consciousness was present in 84 of the cases; in 14 consciousness was not lost, and in two the record leaves the matter in doubt. In 20 of the 28 fatal cases the patient never regained consciousness after the initial stroke. The longest duration of such unconsciousness was thirty hours. In four or more a partial return of consciousness took place, and in the remaining three or four cases, consciousness fully returned, but not permanently.

The deaths, as a rule, took place within a few hours; but 11 of the 28 fatal cases lived twenty-four hours or more after the seizure. The longest survival was more than three days, and here the temperature had fallen, the patient had regained consciousness and was mending when the delirium returned. He had had a sunstroke two years previously.

The longest period of unconsciousness in a patient who recovered was thirty-six hours. Moreover, this person did not enter till the day after his seizure. So that the entire period of unconsciousness seems to have been two days and a half. Ten and fourteen hours of unconsciousness with ultimate recovery also occurred, but usually the favorable cases did not remain more than two to four hours without regaining their faculties.

Convulsions were a very frequent symptom. They are spoken of in 30 of the cases, and were present in at least 13 of the 28 fatal ones. They were tonic and clonic, sometimes local, again general. Universal rigidity and opisthotonos were at times present. Occasionally the convulsions were very violent. A curious spasmodic action which was seen in at least two of my own cases was the rapid darting out and withdrawal of the tongue. Unilateral spasm was occasionally observed. In a patient of Dr. Forster's there was noted "three minutes after death a slow bilateral rotary motion of the arms, beginning in the left and followed by the right. The upper arm was at right angles to body and hands were at shoulders, then both gradually swept down till hands were at umbilicus."

The reflexes were in many of the severer cases greatly diminished or abolished. The pupils were generally irresponsive to light; sometimes they were contracted, and sometimes dilated; often contracted at first, and later dilated; at times they were unequal.

Relaxation of the sphincters and vomiting in unconscious patients were rather frequent.

Albumin was present in the urine in 22 cases, and was recorded as absent in 32. In about half the cases of albuminuria casts were also found. Whether the albumin and casts had been present before the sunstroke is not, of course, to be known, but in a few instances there is very little doubt that the patient was suffering from Bright's disease when he received the stroke.

The habits of the patients regarding the use of alcohol, like other parts of the previous history are, as might be expected in patients brought in unconscious, often lacking in the records. Where this point is noted, alcoholic addiction was admitted in probably about the same proportion of cases in which it is found in the general run of hospital patients. In some cases, but not a large number, the individuals had been drinking considerable liquor just before the seizure, and in a few instances the heat-stroke brought on in its train symptoms of acute alcoholism. The excessive drinking of ice-water is also noted as having preceded the attack in certain cases.

In many of the most serious cases of heat prostration the patients had experienced prodromata of marked significance which should have warned them to protect themselves. For example, the woman already referred to, who washed dishes in a saloon, worked in a very hot place, and for three days had complained of headache, and a feeling of lassitude and weakness. A carpenter admitted to Dr. Shattuck's service, with a temperature of 109.4°, subsequently said that for two or three hours prior to his loss of consciousness, he had been getting weak, and that objects had looked blue to him. A laborer who was finally prostated, though not unconscious, said that he had had nausea and great restlessness for four days previously. Headache, faintness, sweating, vomiting, and cramps were other precursory symptoms too often disregarded by patients until too late. A farmer had been working much in the sun for several days, and was finally stricken down by the heat while in a theatre. A laborer felt weak and faint all one day while in the sun, but continued to work; the following day, while driving a cow on the street, began to stagger, but kept on for some time until he fell, unconscious; was brought to the hospital, in the service of Dr. Rotch, with a temperature of 111°, and died in a few minutes.

The sudden cessation of sweating was noticed by a few patients just before the attack. In one such case a 'longshoreman while "tending hatch" on deck of a vessel at 3 P. M., had been sweating profusely. This suddenly stopped and he "felt cold," then lost consciousness.

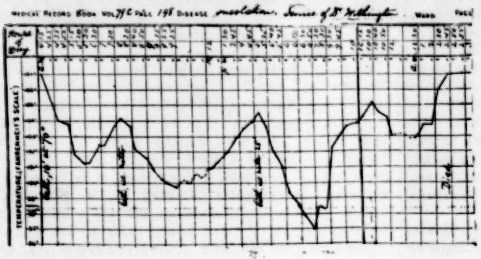
The tendency to recurrence of insolation is illustrated by the fact that a history of previous attacks of the same sort was elicited from nine of these patients, and it is probable that in a large number of the patients this point was either not inquired for or not learned. The previous attacks ranged all the way from eight years to a few weeks. One patient, a sugar refinery workman, was admitted unconscious with heat prostration July 12th, was discharged well two days later, was again admitted with a similar attack August 24th following, and again left the hospital "well" in two days.

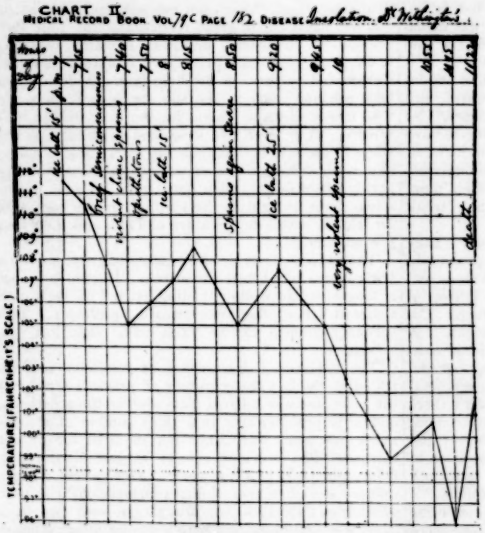
The treatment followed in most cases was the abstraction of heat by cold baths. These were generally started at 70° or 75°, and rapidly cooled down by the addition of ice. This proceeding is generally followed by a considerable reduction of temperature. Sometimes the chilling of the surface drives the blood in upon the viscera, and collapse occurs. In such cases rubbing of the surface, the application of heaters, and the exhibition of cardiac stimulants is indicated.

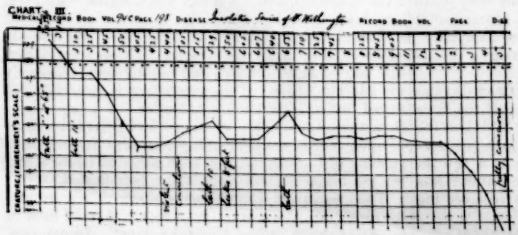
The ice-cap and rubbing with blocks of ice are useful supplements to the full cold bath. A cold bath in ice-water sheets proved a useful adjunct. In one very fleshy patient of Dr. Buckingham's who could not be got into the tub, the temperature was reduced by ice and the external use of ether.

In the earlier years after the introduction of the

antipyretic drugs — as antipyrine, etc. — they were used to some extent to combat high temperature in insolation, but this treatment has of late been generally abandoned in favor of the cold baths.







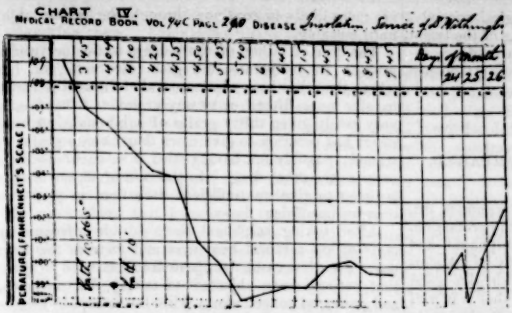
Rarely the temperature rose a degree or so while the patient was in the cold bath. But usually the fall was tolerably prompt. An examination of the thermometric records of the cases generally showed in most of the severer ones a secondary *rise* of temperature coming on a short time after the first fall, and usually not reaching as high a point as the original fever. Sometimes a third or even fourth rise of temperature would occur. The prognosis is grave in proportion to this tendency to subsequent recurrence of the fever. Renewals of the ice-bath sometimes caused a sudden drop of the temperature to a dangerously low figure, 96° or so. Here a copious use of heaters and other treatment against collapse as referred to above, is urgently indicated.

Of the after-effects experienced by patients following the permanent subsidence of the temperature the chief has been headache. This, with weakness and vertigo, persists, as is well known, sometimes for very long periods. Marked mental delusions were occasionally met with. In two cases mental excitement returned on the second day, and in another, violent delirium came back on the fifth day. This last patient had used alcohol to excess. An acute jaundice followed upon the heat-stroke in one or two patients.

The average period of retention in the hospital for the cases that recovered was exactly four days. That is, omitting one case which developed abscesses from the hypodermic injection of quinine, and was kept for five weeks.

Six of the fatal cases came to autopsy. The lesions found were chiefly subendocardial and pulmonary hemorrhages and hyperemia of the meninges. Abnormal fluidity of the blood was also noted.

From the clinical histories of insolation I subjoin a few charts to illustrate the graver types of the affection. Case I illustrates very well a typical fatal attack of sunstroke, and especially shows the recurrent failures of the heat-regulating mechanism to maintain itself after the temperature has been reduced by the cold baths. The patient, a laborer, left work at 3 P. M. on July 27, 1892, saying that he did not feel well. He went to his room, and at 7 P. M. was found unconscious. He remained thus all night, and as he seemed to be getting worse, he was brought to the hospital by the police ambulance, arriving at 4.15 A. M. He entered unconscious, and never recovered his senses more than enough to swallow a little milk. Convulsions were clonic and tonic and frequently recurrent. The chart shows three successive exacerbations of high temperature, and it is to be noticed that the patient finally died with the same temperature, 107°, that he had on entrance. It is further remarkable that the thermometer continued to show per rectum, at five-minute intervals for fifteen minutes after death, the same temperature of 107°.




II. A second case, which occurred nearly simultaneously with the foregoing, July 26, 1892, with the thermometer at 96°, but with a relatively low humidity (44 per cent. at 3 P. M.), showed the phenomenal temperature of 111.5° (rectum) and, as was to be expected, resulted fatally. Its chief features are shown by the accompanying chart, in which the vertical lines represent intervals of about fifteen minutes.

## Clinical Department.

### THREE CASES OF HEREDITARY RUMINATION.

BY EDWARD C. RUNGE, M.D.,
*Instructor in Physiology and Assistant Clinician to the Clinic of Nervous Diseases of the St. Louis Medical College, Medical Department of Washington University, St. Louis, Mo.*

CASES of human rumination are not very numerous, or, to be more accurate, do not often come under the eye of an observer. But cases in which hereditary transmission plays a part, are still rarer; from this point of view, the following may prove of interest.

Having read a report of a case of merycism, which I presented on April 16, 1894, to the Academy of Science of St. Louis, a gentleman of high scientific repute volunteered the confession of being a victim to the same habit. He is the picture of vigorous manhood, and has been enjoying excellent health all his life. The only vulnerable spots in his physical make-up are a furred tongue and somewhat flatulent bowels, which defects are readily explained by good eating and a comfortable life spent to a great extent over books and the microscope. He has been ruminating for a long time — to use his own words, "for ten or more years, probably much longer." This chronological uncertainty goes to show that the habit developed insidiously, without any evident exciting cause. To prove the utter unconsciousness of the process I cannot do better than quote from a note written in answer to a series of questions: "Breathing and our commoner performances, you know, are not the subject of very close observation, so that my answers are not as full as I would like them to be." The food stuffs that require repeated mastication, before following their natural downward course, are "any coarser particles — lettuce, potato, stringy asparagus, gristly meat, etc." The act occurs at any time after the meal, usually early, but occasionally as much as five or six hours after; when that late, the food is distinctly acid, otherwise it is possessed of its natural flavor. Mr. —— informed me that his father has had the habit of regurgitating coarse particles for many years, but that he ejected them without remastication. The latter complained of "heart-burn" at times, but this and the regurgitation were not coincident; his digestion was usually good. The father does not know of any other *mérycole* in the family. Some little time ago, my informant related to me that his boy, seven years old, had developed the ruminating habit, which was first noticed during a recent trans-Atlantic voyage. The child is apparently in perfect health. There is not a suspicion of hysteria, neurasthenia or any other neuropathic disorder in the entire family.

This is a most striking illustration of "hereditary" rumination, occurring as it does in three consecutive generations. The fact that the old man persistently refused to subject the regurgitated particles to repeated mastication, does not absolve him from being considered a *mérycole*. The involuntary phase of the process is as clearly manifest in his case as it is in his son's and grandson's. The prompt response of the sensitive gastric mucosa to mechanical stimulation by coarse food particles, the retroperistalsis set up, unaided by any effort on the part of the extrinsic abdominal muscles, and the yielding of the cardiac sphincter, all these occurring without a trace of nausea, and, lastly, the process ceasing to recur whenever the food reaches the proper consistency — these are the requisite elements that go to make up a case of genuine human rumination.

By his refusal to remasticate and thus render available the regurgitated food, the grandfather simply proved himself to be possessed of a smaller power of adaptation to changed conditions. He was fortunate in having been able to ingest sufficient food in such a shape as not to require any further mastication. If not for this, he would have shared the lot of Sauvage's *mérycole* who, yielding to the importunities of his spiritual adviser, ejected every food particle as soon as regurgitated, and in two weeks developed an alarming degree of emaciation, from which he did not recover until he returned to his possibly sacrilegious, but to him evidently natural habit.

While at work upon the first case of merycism, I subjected the patient's stomach to quite an extensive chemical analysis, following the course laid out by Alt, Juergensen, Boas and Sievers, who sought to explain the etiology of this phenomenon in some abnormalities of the secretory function of the stomach. The result of my examination was absolutely negative, and I candidly admit that I had expected just such a result. I still hold that the phenomenon of human rumination, if genuine, cannot possibly be caused by any deficiencies of gastric function, whether secretory or motile; to call it a "neurosis" shelves the difficulty but does not overcome it.

The three cases reported in this paper serve me as further proof that we must penetrate deeply into the mysteries of the laws of evolution in order to find a satisfactory explanation for this curious phenomenon. Human rumination, as I said on a former occasion, is

not a pathological entity, but a physiological anomaly, most probably produced by an awakening of the latent tendency to revert to ancestral types, a tendency inherent in all living organisms, and too well established to be refused most serious consideration.

## SULPHONAL AND TRIONAL COMPARED.

BY S. G. WEBBER, M.D., BOSTON.

During the last few years several hypnotics, differing in value, have been introduced to the profession. Among the drugs of this class two, sulphonal and trional, deserve especial favor; and it may be interesting briefly to compare them, as they both give good results, yet differ so much in their effect that it is well to know to what class of patients each is the more suitable.

Sulphonal is sparingly soluble in cold water, and is slow in its action. Sometimes as long as two or three hours are required for it to induce sleep. So slow is it at times that patients become impatient waiting for its effect, hence it is better to give it in the evening a while before bedtime. I have sometimes thought that the slowness of its action interfered with the induction of sleep, the patient becoming so nervous waiting for sleep that he was thoroughly aroused. The effect of a full dose, however, continues long; and it will often produce sleep the second night, and in a few cases even the third.

Trional is much more soluble. It produces sleep much more quickly, within a few minutes. In one case the drug was taken before preparing for bed, and its effect was felt so soon that it was an effort for him to get into bed. Its action is less prolonged than that of sulphonal. I have never known it to produce sleep on the second night as markedly as sulphonal, though patients may sleep well the night after taking it, but not from its direct effect.

The day after taking sulphonal there may be great drowsiness during the day. This is less likely to occur after a dose of trional, and if it does is much less intense.

In consequence of the more rapid action of trional, some patients much prefer it to the more slowly acting sulphonal. This is especially true of those who have difficulty in getting to sleep when they first go to bed. Those who suffer from this form of insomnia become impatient at their inability to sleep, and each minute finds them more restless; indeed, it is in part owing to this restless nervousness that they are unable to get to sleep, and for this reason they are desirous of seeing an early result from any medicine they take. To such patients it may be well to give trional.

Another class of patients have no difficulty in going to sleep when they first go to bed; but they wake in a short time and lie awake two, three or four hours, or may have no more sleep that night. To this class sulphonal is the better drug, as it does not interfere with the first early sleep of the night, and acts later so that the patient does not wake at midnight as usual.

The effects of trional do not continue so long towards morning as sulphonal. It gives good refreshing sleep for four or five hours, or perhaps six; then the patient wakes and does not sleep again. In such cases it is possible that the next time a larger dose will produce a longer sleep. The effects of sulphonal are more likely to continue through the whole night until morning.

The dose of either of these drugs is ten or twenty grains. In many cases ten grains are sufficient, but where there has been obstinate wakefulness it is better to give more, fifteen or twenty grains. I have only very rarely given thirty grains of sulphonal. I have never had occasion to give more than twenty grains of trional; possibly not having tried it in such obstinate cases as the other drug. In the case of either drug it is better to give one sufficient dose than to give two or more insufficient doses.

After taking sulphonal there is not infrequently more or less cerebral heaviness and distress the next day. In a few cases the discomfort has been so great that patients have objected to taking the medicine, and preferred to get along with less sleep. I have found much less of this unpleasant effect after trional. One patient, who refused to take sulphonal on account of this after-effect, had little or no discomfort after a dose of trional.

After fifteen or even ten grain doses of trional, I have known slight vertigo or dizziness to be felt before sleep was induced, if the patient rose from bed, lying down caused this to cease; but for a short time it was somewhat distressing. I do not remember this after the ingestion of sulphonal. It may be well, therefore, to warn some patients not to rise after taking trional, to wait until fully ready for the night before taking it, and then to stay in bed without getting up so as to avoid this unpleasant experience.

Sulphonal may be given in small doses, not more than five grains, to quiet restlessness in neurasthenia, hysteria and mania; given three times a day and, if necessary, during the night, it will often have a most soothing effect. I have not tried trional in this way, but should not expect such an effect, as it acts so much more quickly and its action it so much less lasting.

It will be readily seen from this comparison which of these two drugs to choose in combating insomnia; but it must be remembered that neither is a certain cure for this distressing symptom, and that the treatment must be directed to the patient's condition and not simply to the symptom insomnia.

# Reports of Societies.

## BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, SECRETARY.

Regular Meeting, Monday, March 4, 1895, the President, Dr. C. J. Blake, in the chair.

Dr. J. J. Putnam read a paper on

### PSYCHICAL TREATMENT OF NEURASTHENIA.[1]

William James: I did not come here prepared to say anything, nor have I anything that I could say before such an assemblage as this. All I know of the subject is derived from books, but the facts which these books contain seem to me to form a body of phenomena which certainly impresses me, and I have been much pleased and interested to see that Dr. Putnam has taken them up seriously. It would seem if these are a natural class of phenomena that they must

[1] See page 505 of the Journal.

become more numerous as men become interested in observing them. I think that there is a considerable future for this mode of treatment.

Dr. Osgood: I have been very glad to hear this paper, because it seems to me it is time for some one to show us that for some unexplained reason the mind is neglected by physicians. By any form of treatment neurasthenia is not successfully treated unless means are used to withdraw the mind of the patient from his physical being and allow the functions of his body to return to their natural and automatic action. In cases where that is not done almost any form of treatment of this disease is liable to fail. Neurasthenia, of course, is accompanied by a weak and flabby body, by functional languor, absence of good sleep, appetite *nil;* but undoubtedly the root of the trouble is in the mind of the patient. To neglect that and treat physical symptoms alone, seems to me like eating nut-shells and throwing away the kernels. My own experience, as you know, for a number of years has dealt largely with suggestion. Hypnotism is a word which I wish might be banished from the language. About it cluster the misunderstanding and prejudices which so misrepresent the suggestive treatment. Hypnotism was Charcot's pathological and hurtful method of producing sleep. Whereas, a therapeutic sleep produced by gentle verbal methods very rarely fails to benefit the patient. In these five or six years, during which I have been using this treatment, of course I have had very many cases of neurasthenia, and it has been my good fortune to relieve, within a comparatively short space of time, a good many cases which had run the gamut of all drugs and other forms of treatment. It may be thought that I am an enthusiast in the use of suggestive treatment. That is not true. I have made a very thorough study of it, not merely in reading. Since I began to use suggestion I have kept myself practically familiar with the work of the leading men abroad who apply it, and am simply a convert and not an enthusiast. I have simply reached the conclusion that this is a remedy which in proper cases is of great value. A case of neurasthenia may not always be helped by this form of sleep, because all patients are not susceptible.

What this treatment directly does, it seems to me, is that an awakened will arouses an unawakened will. The treatment in my opinion should not always be confined simply to suggestions, for, medical remedies frequently aid suggestion, and I have also discovered, and it is a matter of great interest to me, that medicines, tonics like digitalis and iron, which are indicated and have failed to accomplish any good without the use of suggestion, under the use of the suggestion will be useful, and immediately produce their strongest effects. I must confess that I have been surprised during these years that more physicians have not made use of this treatment, because in susceptible cases it is rapid in its action, and it is more direct where it does act than any other form of treatment except surgery. If applied in the proper way it is absolutely free from danger, whatever may be said to the contrary. It is just as necessary to know how to apply suggestion as to know how to pass the catheter or how to use electricity; and it is simply the abuse of the treatment, the causation of hallucinations and that sort of thing which has brought reproach upon this method of sleep. No fair-minded man would think of taking advantage of his patient's mind, when it was in a deep sleep, beyond the actual needs of that patient's organism, any more than he would of stimulating his patient with whiskey beyond that patient's need in order to amuse himself with the drunken antics of his subject. Van Renterghem and Van Eeden came out in print some years ago very decidedly in a plea that all physicians who use the treatment should confine themselves wholly and strictly to the mental and physical needs of the patient. I believe that if physicians would only put themselves in the way of seeing suggestion applied, that their experience would be that of Bernheim, than whom there was never a greater sceptic, until he was dragged into the school of Liebault and forced to acknowledge the benefit of the treatment which he then began to use himself with results with which you are all familiar.

Dr. Prince: I think we all ought to feel very much obliged to Dr. Putnam for taking the bull by the horns and presenting this subject to us in such a satisfactory way, saying boldly what many of us have been thinking for some time, and formulating in a precise way what many of us have thought, but perhaps have not felt like proclaiming. That the mind has a deleterious influence upon the body I do not suppose any of us would pretend to contradict; and that in neurasthenia this influence is one of the strongest and most active factors, I think is a fact that impresses itself upon a physician the more he has to deal with this class of cases. Dr. Putnam has said that all those who have been most successful in the treatment of this disease have usually had special treatments of their own, but there has generally been a common principle running through all these treatments. I think if these treatments are carefully analyzed it will be found that there is one factor that is common in them all, namely, the psychical element. When I first started in practice I thought that given a case of neurasthenia, all we had to do was to make fat and blood, give the patient rest, build up the nutrition, and as we saw the fat and blood increase the symptoms would disappear. I soon found that this was a mistake. Another element was wanting, and that element I believe to be the psychical element. It is this element which is present in what is so strongly insisted on by Weir Mitchell and others, namely, taking the patient away from home. The psychical impression produced by isolation is complex in its action but effective. I have on more than one occasion attempted to treat a patient at home, and I think I may say in most cases where the neurasthenia has been of any gravity I have been unsuccessful. Charcot recognized this fact. I was fortunate enough to see Charcot a few months before he died. He conversed with me about this treatment. He said it is not necessary to feed them up and make them fatter, but to take them away from their homes. I said: "Dr. Charcot, I think there is one thing you forget. You forget the good big dose of Dr. Charcot you give them every time you see them." And that is another fact — the influence of the personality of the physician. That is a fact the physician himself cannot personally recognize. Those physicians who have been most successful in the treatment of neurasthenia do not, I think, fully realize how much of their success is due to the influence of themselves upon the patient. It is also a fact, I think, that many cases of neurasthenia in which we cannot trace the connection between the

mind and body nevertheless are really the result of a morbid psychical influence. I will cite one case illustrative of this, because it is a very striking one. I had a patient who was a typical case of neurasthenia. She was below weight, anemic, and had very bad digestion; had got into a condition where she took almost nothing in the way of food; had every kind of symptom referable to all parts of the body; and had been a nervous invalid some eight years. She had been under a number of physicians, and treated by all without success. I attempted to treat her by the Weir Mitchell method in her home. I recognized the fact, as I thought, that though she was debilitated, she was the subject of a large number of symptoms grafted upon her condition by mere process of habit. She was fattened up, and she weighed more, her digestion improved, and in many respects she was a great deal better; but when she attempted to resume her occupations she immediately broke down and largely went back into her old ways. I went to Europe at this time, and she consulted a Christian Scientist. In the course of two weeks she was cured, and is well to this day. There, undoubtedly was a case in which the symptoms were entirely due to the influence of mind on the body, and cured by a psychical process, although I could not see the connection between the two. There is much else I would like to say on the pathology of these affections, especially on the relation of the substrata of consciousness to bodily processes; but it is late and I won't take up the time.

DR. WEBBER: I have been very happy to hear this paper. I do not wish to take up time in adding anything to what has been said. I think about all the points have been touched upon; but I think, as has been remarked, that the mental influence was used a good many years ago, and that the success of many of the old practitioners was due to their personal influence upon their patients, not simply cases of nervous disease, cases of neurasthenia, but ordinary cases of sickness. It is an element which comes in play and is of very great use, that the patient's mind should be turned upon a cure, and that he should be reassured continually by the physician as much as a physician can honestly assure a patient that he is to get well; and I think it is the hopefulness and cheerfulness of the physicians, not only in former times, but now in general practice, which has added a great deal to their success. A doctor who is not hopeful, cheerful, cannot keep his patient's spirits up, is much less likely to be successful either in general practice or in treating these cases of neurasthenic patients. One reason for taking patients away from home is not only to get them away from the family and surroundings, but that they may come into more direct and personal relations with the physician. A neurasthenic patient at home thinks that the physician who calls upon her twice a day or once a day is making unnecessary calls. Often a patient thinks that a call every two or three or four days is as much as is needed, and the patient and friends become impatient because the physician makes so many calls. If the patient is taken away from home and put in a sanitarium, the physician sees that patient every day or twice a day, and keeps up a constant mental influence and exercises continually this influence instead of exerting it remittently; and the result is very much better. Suggestion plays an important part in helping towards recovery. I am glad that Dr. Putnam touched upon gymnastics. Graduated gymnastics is of very great importance; and breathing exercises, I should add, as being of very great value. When the patient is taught to breathe properly and take deep breaths, it is soothing and quieting. There must be more or less relaxation of other muscles besides those of respiration, so that the patient is in a more or less receptive condition, and I am not sure but it aids in suggestion. I should like to mention one case showing the power that the mind had over a patient. Some fourteen years ago a patient was under my care who had got into such a mental state that one drop of the tincture of belladonna produced dryness of the throat, one drop of tincture of nux vomica produced relaxation of the bowels, and two or three grains of bromide of potassium produced quiet and sleep; she had come to learn the physiological effect of the drugs. By using a little mystery, and giving the medicine to her masked, and by gradually working upon her mind, she got out of that. She thought that the little pills I took to her had a wonderful effect. There was really no medicine in the pills. The whole influence was purely mental in that case.

DR. PUTNAM: I have practically nothing more to say. In one sense, these special movements such as the Mind Cure are, as Dr. Folsom has said, only repetitions of many similar movements in the past, and the same might be said of other methods of using psychical influence. Nevertheless, each such event will always be instructive, both psychologically and practically, and is sure to have a character of its own, corresponding to that of the particular generation and community in the midst of which it occurs. My main object is to insist that physicians who are using their personal influence and manipulating the patient's mind for therapeutic ends, should not do so blindly and in simple reliance on their instincts, but should increase the scientific value of their work by systematizing their own methods and by studying in detail the methods of others.

## AMERICAN MEDICAL ASSOCIATION.

FORTY-SIXTH ANNUAL MEETING, BALTIMORE, MD., MAY 7–10, 1895.

(Continued from No. 20, p. 497.)

### SECTION ON SURGERY. — FIRST DAY.

THE Section was called to order and opened by the Chairman DR. JOSEPH RANSOHOFF, of Cincinnati, O., who in lieu of an address read a paper entitled

### CONCERNING STONE IN THE KIDNEY AND ITS OPERATIVE TREATMENT.

Clearness in the diagnosis and skill in the operative treatment of surgical diseases of the kidney are among the conquests of the closing decades of our century, but there still remain many problems pertaining to the diagnosis and treatment of primary stone in the kidney.

Stone in the kidney is not a rare affection, yet in the majority of cases found at autopsies, no tangible symptoms were developed during life. On the other hand, no other affection of the kidney is so often erroneously supposed to be present as stone. In seven cases of nephrotomy, by the author, for stone, the search was fruitless in two instances, yet all the symptoms were present. The presence or absence of crys-

tals in or from the urine is not a reliable diagnostic point. Far more important is the presence of red blood-discs at every examination, and especially so when associated with acid pyuria.

The cystoscope is very valuable as an aid in diagnosis, for with it we can eliminate vesical disease as well as locate by means of the ureters the kidney affected.

Nephro-lithotomies, as in hernia, may be divided into those of choice and necessity. In the unobstructed we may choose the time for operative interference; in the strangulated, delay means death.

The choice of operation must be between simple incision, and extirpation or partial resection of the kidney. Large size, confirmation and multiplicity of the calculus should not weigh in favor of nephrectomy, since with the longitudinal incision along the renal convexity ample room for manipulation can be obtained. Incision along the convexity is least likely to wound the larger vessels and the hemorrhage is parenchymatous, and may be reduced to a minimum by temporary pressure. Stone in the pelvis of the kidney should, if possible, be removed through an incision in the cortex. The concluding act of every operation upon the kidney should be fixation in its normal position.

In conclusion the following theses are presented for consideration:

(1) Absolute diagnosis of stone cannot be made.

(2) Nephro-lithotomies must be divided into those of choice and necessity. In anuria and profuse hematuria delay is fatal.

(3) Pyuria and hematuria, as evidences of beginning destructive changes, are positive indications for operative exploration.

(4) The oblique incision is preferred for the ease with which it permits the exploration of the entire kidney.

(5) Acupuncture is not to be relied upon.

(6) Incision should be made along the convex border, and only when the circulation is controlled by digital compression.

(7) Incisions into the pelvis for exploration and for removal of a stone are to be avoided.

(8) Primary nephrectomy for stone should be reserved for extreme cases.

(9) Primary union by suture, where feasible, makes nephro-lithotomy an ideal operation.

(10) Tight packing of the kidney wound and perirenal space endangers the nerve-supply of the colon.

(11) Nephrorraphy should form the closing act of every operation which has seriously disturbed the relations of the kidney.

### AERO-URETHROSCOPY

was the title of a paper read by Dr. William K. Otis, of New York City.

Little, if any, change has been made in urethroscopic tubes since the invention of the original illuminating apparatus. In 1892 the first single instrument combining the source of illumination with the air apparatus was made.

This instrument is heavy and cumbersome, and the distance between the glass surface of the diaphragm and the meatus is over two inches and a quarter. In making applications the diaphragm must be removed, laid aside and replaced, making an annoying break in the rhythm of the operation. The illumination from a concave mirror is inferior to that from a plano-convex lens.

In the author's instrument the diaphragm is arranged to swing on a pivot, and urethral tubes of any length or calibre may be used. The claimed advantages are:

(1) Ready access to the urethral field for the purpose of making local applications under the direct control of the light.

(2) Minimum distance between the eye and the urethral mucous membrane, hence a better and clearer view of the field.

(3) Extreme lightness.

(4) Simplicity of construction and moderate cost.

There is difficulty in obtaining a thorough appreciation of the morbid conditions present in the many obscure cases which present, where the urethra is implicated. Despite its many drawbacks, this instrument furnishes us an aid to diagnosis which no urethroscopist of the present day can afford to ignore.

### THE VALUE OF URETHROSCOPY IN CHRONIC URETHRITIS, WITH DEMONSTRATIONS OF THE NITZE-OBERLAENDER, CASPER, AND POSNER URETHROSCOPES AND OTHER URETHRAL INSTRUMENTS

was the title of a paper by Dr. Ferd. C. Valentine, of New York. This paper was practically a demonstration of instruments.

The Posner Urethroscope is a prolongation of the meatoscope without the obturator. It is made in two forms: one with the tube vertically cut off, the other terminating obliquely. The illumination is thrown in at the top funnel.

The Casper is more extensive. The tubes are metal and longer than the Posner and have an obturator at the visual end of the rim, with an arrangement of condensors and prism by which the electric light is reflected into the urethra. This instrument requires much experience in its use to be of value.

In the Nitze-Oberlaender the urethral tubes have a light-carrier inserted, by which means the light is placed at the point to be examined. Two small tubes carry a current of water around the light to protect the urethra from undue heat.

Cystoscopy has great value. By it we not only eliminate the bladder in doubtful cases, but we are also enabled to examine the mouths of the ureters and find, almost to a certainty, which kidney is affected; and by its aid we can catheterize the kidneys and get the urine uncontaminated by the bladder.

Dr. Otis considered the external light better than one placed within the urethra. The internal light required a cumbersome, complicated and expensive apparatus for the purpose of protecting the urethra from the heat of the light. With the aero-urethroscope you get all the light necessary.

Dr. Deever, of Pennsylvania, thought it almost impossible to be absolutely correct regarding the diagnosis of renal stone, and that the presence of red blood-discs in consecutive examinations of urine was of the greatest importance. He believed the oblique incision best and that it should be a posterior operation. He believed the disturbance to the colon by the packing was due to the pressure on the bowel itself, which obstructed its lumen and was not due to pressure upon the nerves.

He regarded the urethroscope more as a diagnostic instrument than one adapted to treatment.

Dr. Valentine thought that the inflation of the urethra with air obliterated the striæ and distorted the picture.

Dr. Otis stated that while air distention did distort the urethral membrane, by turning the diaphragm you could allow the air to escape and get the normal picture.

Dr. Homer Gage, of Worcester, Mass., read a paper on

MOVABLE KIDNEY.

He cited a case of a woman who had been operated upon the right side for this affection, and who shortly afterwards developed the same condition on the left side. Just before the operation, while lifting a stove she felt something give way on the left side. Three silk sutures were used in this case, and after two years there has been no recurrence. The only symptom this patient had was local pain.

Another of his cases had a train of symptoms along with the pain. In December he operated, and used six carbolized sutures, but did not get firm hold upon the kidney. She was free from pain until the following April, when the symptoms returned. The second operation was performed in December. He split the capsule on the outer border, and passed five sutures through the fascia. The pain again returning, she entered the hospital for removal of the kidney. Upon exposing the kidney adhesions were plainly visible, and its apparent mobility was due to the relaxed and flabby condition of the tissues. Since removing the kidney she has remained well.

Case I was interesting as a double affection and absence of accompanying symptoms; and where this absence of complicating symptoms exists the success of the operation is greater. Case II had all the complicating symptoms.

W. E. B. Davis, M.D., of Birmingham, Ala., also presented a paper on "Movable Kidney," which was read by title only.

Dr. Wyman, of Detroit, thought sutures should always be passed through the kidney substance itself. He also thought the extreme laxity of the peritoneum was responsible for failure of fixation. The peritoneum forming the natural support of the kidney, it should be drawn back into the wound and sutured there.

Dr. Weeks, of Portland, Me., uses silk sutures, passing them through the substance of the kidney, capsule and muscular tissue and fastening to the posterior part of the incision.

The paper was further discussed by Drs. Fergusson of New York, Willard of Philadelphia, Robbins of California, Fenger of Chicago, and Davis of Alabama.

THE RADICAL CURE OF HYDROCELE,

a paper by Dr. D. C. Hawley, of Burlington, Vt.

The only known method of absolute cure is the complete obliteration of the tunica vaginalis. Injection with iodine is painful, causes great swelling, confines the patient to his bed from three to five days; and three to four weeks elapse before a complete cure is obtained. Carbolic, while being less painful, requires the same length of time.

Dr. Hawley's method is to make an incision two inches in length along the anterior surface of the tunica, allowing the fluid to escape. The sack is irrigated, and its interior irritated by rubbing with the finger-tips. It is then packed with iodoform gauze. The edges of the tunica are stitched to the skin with black silk sutures and the patient kept in bed. The next day the gauze is removed, and strips of adhesive plaster applied around the scrotum causing equal pressure, and a light dressing of gauze is applied. In four or five days the sutures should be removed; should a sinus exist, it should be treated upon general principles. In from six to twelve days the wound is entirely healed. Its advantages are shorter duration of treatment, probability of radical cure in every case, and the ability to inspect the condition of the testicle. General anesthesia is unnecessary, as the operation is done under cocaine.

Dr. Maclean said, of all the various plans brought forward, he knew of none giving better results than injection with iodine. He used the strong, and in some cases Churchill's tincture of iodine. The patient should stand up, a large trocar should be plunged into the sack, and every drop of fluid pressed out before he injected two drachms of the strong tincture. The scrotum should be violently shaken immediately after withdrawing the canula. He has always allowed his patients to go about their business, and did not confine them to bed nor the hospital. He had never failed by this plan except in one instance, where there was an enormous double hydrocele with complications.

Drs. Gaston, of Atlanta, and Vance and Rodman, of Kentucky, endorsed Dr. Maclean's plan.

SECTION ON SURGERY. — SECOND DAY.

WHAT ADVANCE HAS BEEN MADE IN THE SURGICAL TREATMENT OF HERNIA?

This paper, by Dr. W. B. DeGarmo, of New York, reviewed the various methods of operation for the past twenty years.

Of all the various methods he thought that of Bassini was the best. He believed in opening up the entire canal and removing everything, including the fat, which if left in acted as a wedge and reopened the canal. The sooner surgeons recognized the sack as a foreign body and completely obliterated it, the better the results would be. For suturing he thought kangaroo tendon better than silk.

Dr. Weeks, of Maine, wished to know whether all cases were to be operated on for radical cure. He thought that cases which could be controlled by a properly fitting truss should not be operated on, and in children under three years the operation was usually fatal; also, that the greater the number of appliances used, the greater the difficulty in accomplishing a cure. He favored the Halstead plan; the only distinction being that the cord is placed immediately beneath the skin and, including all muscles, stitched to Poupart's ligament.

Dr. John B. Deaver, of Philadelphia, Pa., read a paper on

APPENDICITIS.

The writer said there were many sceptics as to the course of this disease and its radical cure.

The diagnosis was easily established. Upon palpation a localized point of tenderness could usually be found, which was of great value. Excruciating tenderness indicated pus. Temperature was not reliable, but a sudden fall indicated perforation. The point of tenderness was frequently referred to the left side. Foreign bodies were often retained in the appendix, causing no symptoms until a catarrhal inflammation caused by a cold; suppuration would then ensue.

Early operation made the prognosis better. If the general peritoneal cavity had been invaded, the prognosis was bad. With perforation into the bowel recovery was the rule; into the bladder, the prognosis was very bad.

Operation was the treatment for all cases as soon as the diagnosis could be made. We had no way of foretelling whether perforation, gangrene or pus would ensue, or that it would be a simple catarrhal inflammation.

As to the danger of operation, one hundred operations without a single fatality required no comment. Early operation was more of a conservative treatment than a radical procedure. One attack was sure to be followed by another. Early operation was comparatively easy; but pus once formed, the operation demanded the best of judgment and skill.

The median incision should be avoided, as it was necessarily a large one, and the peritoneal cavity could not be so well protected from infection. The abscess to be drained before removing. Unless the appendix was removed the operation was not a curative one. McBurney's operation was the best for chronic cases and prevented hernia.

DR. GASTON, while admitting early diagnosis and operation to be imperative, thought it was not always easy to determine that you had a case of appendicitis. He had seen a case where all the usual symptoms were absent but pus was abundantly present.

DR. MCGONIGAL'S experience was recovery in all early operations, but death where the operation was delayed for four or five days.

DR. QUIMBY, of New Jersey, disagreed with the writer; he thought medicine and nature should be first given an opportunity, and that it was a serious mistake to treat every case as a surgical one. In small places where expert surgeons were not available, what was to be done? He treated this disease as he would peritonitis.

DR. WYMAN, of Michigan, said his experience was limited to cases where suppuration had already taken place, the delayed diagnosis being due to the powerful contraction of the abdominal muscles. As to the cause of the disease; he believed there was a geographical distribution of it, as existed in malaria, and that the presence of a foreign body was merely a coincidence.

DR. MURPHY, of Chicago, said a diagnosis could best be made within twelve hours after the first attack. The variety of the infection governed the symptoms. Where a blistered condition of the peritoneum existed, as though parboiled, the case was a bad one, and far more fatal than the mere presence of pus.

DR. MARCY, of Boston, endorsed Dr. MURPHY'S views.

Rigidity of the muscles on the right side of the abdomen, in the opinion of DR. HAWLEY, was evidence enough for operation in every case.

DR. WILLARD believed in early diagnosis and lateral incision.

DR. RANSOHOFF, of Cincinnati, thought the removal of the appendix was not necessary in cases of circumscribed abscess to bring about a radical cure. This could be accomplished by drainage.

In closing the discussion, DR. DEAVER claimed that where the appendix had not been removed, there was a recurrence in fully fifty per cent. of the cases.

### RADICAL INTERFERENCE IN DISEASES OF THE CHEST.

by DR. J. MCFADDEN GASTON, of Atlanta, Ga. This paper was a plea for early operations, especially in empyema.

DR. SMITH, of California, in experimenting upon the rabbit, found by packing the chest with gauze the hemorrhage could be stopped, and recovery of the rabbit ensued. If this was possible in an animal with so low a vitality, why could not the same be done with man with as good results? He claimed as much could be done with the pleura as with the peritoneum.

The paper was further discussed by others, with the conclusion that the best results followed an early diagnosis, with resection of as many ribs as was necessary to establish complete drainage.

### TREATMENT OF MALIGNANT TUMORS BY THE TOXINES OF THE STREPTOCOCCUS OF ERYSIPELAS.

This paper was read by DR. NICHOLAS SENN, of Chicago. Its use proved a failure in all cases where he used it. Actual attacks of erysipelas and injections must differ in the effects produced; because in one instance, by limiting it to the superficial lymphatics, in certain cases these pathways must be obliterated, and in exceptional cases, by obstructing these pathways, a limitation of the extension or a complete cure of the disease might be possible. In many cases where cures had been claimed, the diagnosis had not been verified by clinical or microscopical examinations.

His toxines were derived from three different sources. In nine cases he had used from twenty-five to seventy-five injections of from three to fifteen minims. He not only failed to obtain a cure, but in some instances the injections appeared to aggravate the local and general condition of the patient. The cases in which this treatment had been resorted to were all inoperable; and as nothing else could be done for this class of cases, he would continue his experiments, but he believed in a year or two this remedy would be relegated to the past.

By invitation from the Chair, DR. W. B. COLEY, of New York, opened the discussion. He had treated 84 cases during the past four years. They were all malignant: 43 sarcomas and 27 carcinomas. Eleven sarcomas and two carcinomas were cured. With 11 successful cases to its credit, he did not think the remedy stood in much danger of being relegated to the past.

The questions to be answered in Dr. Senn's paper are: (1) Have toxines any curative effect? (2) Is the cure temporary or permanent? (3) What form of tumors are susceptible to it?

The first question was answered by eleven successful cases. Three of the cures at present, being of two years' standing, with absolutely no symptoms of a recurrence, answered the second question. As to the third question; until the present he had advocated its use in nothing but sarcoma. As these tumors yield differently, according to their forms, in some cases no success whatever was obtained.

While DR. SAYRE, of New York, had had no personal experience with the remedy, he had seen some of Dr. Coley's cases before treatment, and again one year after treatment. In no single instance was there any evidence of a return of the disease.

DR. FENGER, of Chicago, had used it in twelve cases without any benefit resulting.

DR. WYETH, of New York, thought the following might reconcile the different reports on toxines: Eleven years ago he injected arsenic around a tumor. It caused great pain, with widespread suppuration, eventually resulting in the man's recovery. He had used Dr. Coley's toxines in a case of epithelioma, with no result. Might not the good results obtained by Dr. Coley be due to the inflammatory action of the injection destroying the rank cells of the growth?

Dr. HERRING removed a growth reaching from the abdomen down to the knee. After the operation an attack of erysipelas ensued, after which the growth apparently proceeded more rapidly. This was repeated several times, and each time appeared to aggravate the disease more than ever.

DR. KEEN, of Philadelphia, said that while he had absolute faith in Dr. Coley's statements, he had no faith in the treatment. He used it for two reasons. He was not prepared to condemn it, and when he met such cases he would use anything that held out any hope. He would continue its use in all such cases until convinced of its hopelessness. His toxines were obtained from Dr. Coley. He used them in cases of sarcoma and carcinoma, with disappointment, except possibly in one. This was a large angio-sarcoma of the brain. It was too large to be removed entire. He removed portions at two successive operations and subsequently injected the toxines. Two months after ceasing the injections there was no apparent improvement whatever. Some time after this, when he again saw the patient, the wound had healed over, and a great shrinkage had occurred. Whether this was due to the toxine and would be a cure, he did not know. He had seen cases of abdominal tumors pronounced as sarcoma disappear of themselves.

In reply to Dr Wyeth's question DR. COLEY said, that in many cases the tumor appeared to be simply absorbed; there was complete absence of any breaking down or inflammatory action.

### AN ORIGINAL OSTEOPLASTIC OPERATION FOR THE REMOVAL OF LARGE VASCULAR TUMORS GROWING IN THE VAULT OF THE NASO-PHARYNX, ANTRUM OF HIGHMORE, SPHENO-MAXILLARY AND PTERYGO-MAXILLARY FISSURES.

An interesting paper with this long title was read by DR. JOHN A. WYETH, of New York; the case being a desperate one, nothing was left but a formidable operation.

As a precautionary measure a canula was inserted in the median cephalic vein, and a quantity of salt solution prepared for immediate use, if necessary. The incision was commenced along the temporal arch, carried down parallel with the nose to the alæ nasi, then turned outward and upward, making an oblique incision. The tissues were dissected loose, and carried over, exposing the bone. A key-hole saw was then inserted, separating the malar from the frontal bone. The hemorrhage was terrific; and at this point a pint of salt solution was injected. After removal of the malar bone, by depressing the zygomatic bone, he had full access to the cavity, and the growths were removed. The tissues were replaced, but bone-sutures were omitted. Recovery was uninterrupted, and the patient has excellent motion of the eye. The whole operation occupied but one and one-half hours, and about five pints of salt solution was injected in all.

### TUMORS OF THE MAMMARY GLAND,

by DR. W. L. RODMAN, of Louisville, Ky. It consisted of a plea for early radical operation in all cases of breast tumor. Not only the tumor itself, but the entire breast, with all underlying structures, including the muscles, should be removed; otherwise you risked a recurrence of the trouble.

### FOREIGN BODIES IN THE ESOPHAGUS WITH A REPORT OF FIVE ESOPHAGEAL TUMORS,

by DR. A. VANDER VEER, of Albany, N. Y., was read by title only.

### IS TOTAL EXTIRPATION OF THE RECTUM EVER JUSTIFIED?

was the title of a paper by DR. J. M. MATTHEWS, of Louisville, Ky., who said: Like many kindred operations, while strongly advocated by many, it has but little to recommend it. They are done chiefly to test its efficacy and the methods of others. We have periods in which there is a rage for certain operations, but he is the best surgeon who studies his case from all standpoints, as great responsibility rests upon his decision. Do we always stop to think whether the new is as good as the old operation? Is it justifiable? Is the patient ever cured of a malignant disease by the operation? Is he relieved or benefited by it?

The author thought not. His reasons for deciding against this operation were that it was an exceedingly difficult thing to decide whether systemic infection existed or not. By the time the growth had assumed sufficient size to attract the patient's attention and cause him to seek medical assistance, many of the surrounding tissues were already involved. It was one of the bloodiest operations known. You could not follow the rule of cutting wide of the mark without invading vital parts; and if such was the case, of what avail to extirpate the rectum and leave surrounding infiltrations? Under such admitted circumstances when was the operation justifiable?

### COLOTOMY AND EXTIRPATION IN CASES OF CANCER OF THE RECTUM,

by DR. L. H. ADLER, of Philadelphia.

These were two recognized operations, cancer of the rectum rarely manifested itself early enough to admit of much benefit ensuing from a radical operation. The writer had never seen one case benefited by extirpation. But colotomy retarded the growth of the tumor, relieved the pain, and substituted a painless death for a painful one. It prevented intestinal obstruction, enabled the patient to sleep, eat, and pass his remaining days in comfort. It was the least dangerous of the two operations.

DR. KEEN, of Philadelphia, endorsed Dr. Rodman's views regarding breast operations, by removing the entire breast, underlying tissues, including the muscles, and all structures likely to be involved. The incision should be carried above the clavicle, along the border of the sterno-mastoid muscle. Regarding the mortality of the operation, we had got better results in this country than in England, where out of 489 operations there were 46 deaths. In American operations to the number of 464, there were but four deaths.

Regarding extirpation of the rectum, the mortality had been small and the relief immense. In two cases operated on two years ago for removal of the entire

rectum, he removed the coccyx and a large part of the sacrum and both patients were well today. In both cases he had first done a colotomy. In another case he removed the rectum, uterus, ovaries, tubes and the posterior wall of the vagina, and the woman was to-day perfectly comfortable.

Dr. Jacobson thought that the surgeon who looked down upon extirpation as the bloodiest of operations was not well posted on the present methods. He knew of no operation for malignant tumor less bloody. He referred, of course, to cases where the surrounding tissues were not infiltrated. He had never lost a case.

Dr. Davis never saw this operation without considerable hemorrhage. He endorsed colotomy, and claimed every relief from colotomy that could possibly be obtained in extirpation, which he regarded as a very difficult operation.

Dr. L. McL. Tiffany thought extirpation should be done in all cases where a diagnosis was made early.

Dr. Marcy, of Boston, thought the rectum should be excised if seen early enough.

In closing the discussion Dr. Matthews said every one who had discussed his paper had agreed with him in the main. Total extirpation in operable cases were the ones he spoke of; and it was one of the bloodiest of operations. Continuing, he asked, Are you justified in extirpating in these cases, where all these men who advocate it have just admitted they never seek aid until other structures are invaded? Dr. Keen's report is of cases operated upon only two years ago; after colotomy cases have lived six years. Can extirpation show better or as good results? All these advocates first performed colotomy; what then was the object of the extirpation?

Dr. Rodman, in closing the discussion on the breast, said that Dr. Keen's foreign statistics went back as far as 1870, and this accounted for the large average mortality of the Germans; but he thought the German statistics of the past five years were equally as good as the American. The reason the English had such a high mortality was because they did not keep up with the times.

Dr. D. D. Stewart, of Philadelphia, presented a paper on

### Electrolysis in the Treatment of Sacculated Aneurysm, through Introduced Wire, with Report of a Successful Case.

He inserted a gold wire, of sufficient calibre to form spirals, in the centre of the cavity. Ten feet were passed in. The current was passed without interruption for seventy-five minutes. Before the expiration of half an hour the needle was able to stand up in the cavity without support. The operation caused no pain. Three weeks afterwards the operation was repeated because the upper part of the sack was not sufficiently occluded. This time but two and a half inches of wire could be inserted.

## Section on Surgery.— Third Day.

Dr. Carl Beck, of New York, read a paper on

### Asepsis in Private Practice.

This was practically an exhibition of a portable sterilizing apparatus. He claimed that with our present methods, almost any operation done in a hospital could be done equally as well in the patient's home.

The room in which the operation was to be done should be prepared the day previous by an assistant; and then nothing in it should be disturbed for several hours preceding the operation. The patient should have a warm bath the day before.

The apparatus consisted of a series of four pans or trays, which fitted into one another, which when closed could be carried in an ordinary surgeon's-bag. The heat was supplied by two alcohol lamps. A small apparatus of the same description was exhibited, which when closed could be carried in the pocket. This was intended for sterilizing pocket-case instruments.

### Ileus.

A paper illustrated by charts and plates, by Dr. J. B. Murphy, of Chicago.

By the term ileus, we mean a plexus of symptoms: where there is pain in the abdomen of greater or less severity, accompanied by nausea or vomiting, or both, and inability to evacuate the bowels.

The surgeon is interested in the intestinal tract only from a mechanical standpoint. It is a long muscular tube with various points of strictures and contractions, such as at the pylorus, ileo-cecal valve, etc. This canal has a mechanical purpose, and with this mechanical action only are we interested.

Causes of intestinal obstruction are paralysis of its muscles; mechanical obstruction and spasmodic contraction. Of the dynamic variety, we have paralysis from operation on the gut.

In intestinal operations, how much can we interfere with the mesentery without producing paralysis of the ileus? This depends upon the position of the ligature. The blood-supply is from the mesenteric arteries, and again from the parallel artery, which is not accompanied by a vein. Upon the dog you can cut off the mesenteric supply for six and one-half inches without causing paralysis or necrosis; but if both vessels are ligated, anything over one-half an inch, causes a necrosis.

What becomes of the strangulated and constricted bowel, and why? After the twisting, the venous circulation is first disturbed; then damming of the bowel, cessation of the circulation in the mesenteric vessels, and lastly in the parallel vessels. The parallel vessel being protected by a cushion of fat, it takes a long time for it to give way. There being no vein to return the blood great congestion of the bowel ensues; and if sufficient time has not elapsed to cause a thrombosis, the bowel can be placed back into the abodmen after the obstruction has been removed.

When excision of a bowel section is necessary, cut off a little more of the gut on the convex side than on the mesenteric side; otherwise you will have a necrosis of the bowel.

We have paralysis from spinal affections, such as fractures, injuries to the afferent nerve, etc. He had seen a case of this kind where for a considerable length the bowel was distended to three times its ordinary circumference, and the distention was not due to fluid or gas. It is also obstructed by reflex paralysis, such as obstruction to the cystic duct from calculus, renal calculus and spasmodic contraction. The latter is especially frequent in lead-poisoning. Local paralysis occurring in peritonitis, is an important cause and one of the most difficult to differentiate.

Regarding differential diagnosis, in dynamic ileus you can by careful auscultation of the abdomen determine the absence of peristalsis; and the presence or

absence of peristalsis in early obstruction is of more importance than any one sign or symptom known.

SCIENTIFIC USES OF THE SURGICAL FLAP,

by DR. GEORGE WILEY BROOM, of St. Louis, Mo.

Attention was called to the fact that the particular point of amputation was not as important as the technique. If this is properly carried out and the cicatrix where it ought to be, the artificial limb-maker can readily adjust artificial limbs to any variety of stumps.

In speaking of the drainage-tube he claimed that it exposed the wound to 178 varieties of cutaneous bacteria. A blood-clot in a wound was not a foreign body, and as blood possessed bactericidal properties, it was not a source of danger.

SURGICAL TECHNIQUE OF ASEPTIC WOUNDS,

by DR. HENRY O. MARCY, of Boston.

Suppuration means that something has been wrong in the technique or its carrying out after operation.

The parts should be protected by towels wrung out in bichloride solution. Frequent sponging of the wound is harmful. The so-called drainage resulting from the use of chemicals has been greatly overestimated. Drainage-tubes are still too frequently used. Tendons of animals make the best sutures. They are stronger and lighter than silk, and do not absorb too quickly. In the application of buried sutures we should use no undue constricting force.

For the coaptation of wounds the running sutures are best.

DR. B. MERRILL RICKETTS, of Cincinnati, O., read a paper on

FLAT-FOOT.— SUPRA-MALLEOLAR OSTEOTOMY, WITH REPORT OF A CASE.— PHOTOGRAPHS AND SPECIMENS OF FEET OF MAN, ORANG, BABOON, CHIMPANZEE AND GORILLA.

The mastoid process in man's skull is only rudimentary in other animals, and is due to the upright position in walking. Children are born flat-footed. Savages wearing no shoes are always flat-footed. Civilization tends to obliterate flat feet. Flat-foot is principally due to failure of the tarsal bones to become rigid. It becomes aggravated by age. The chimpanzee has but little arch. The posterior part of the gorilla's os-calcis touches the ground.

The manner of dressing the feet in early life is a prominent factor in producing deformed feet. All flat feet which cause pain or deformity should be operated upon. Trendelenburg's operation is the best.

GALL-STONES IN THE COMMON DUCT, AND THEIR SURGICAL TREATMENT,

by DR. CHRISTIAN FENGER, of Chicago.

In the great majority of cases these stones are floating, and in manipulating you may push them up into the hepatic duct and out of reach. These floating stones act as ball-valves.

In eighty per cent. of the common-duct cases instead of a dilated gall-bladder, we find it small and atrophied.

Symptoms of floating stones are repeated attacks of pain, but not of sufficient duration to cause much jaundice. These attacks of pain are repeated until there comes a final one causing death.

As we can never foretell this final attack we should operate as soon as diagnosis is established. Operate by the usual incision, removing all adhesions until you get down to the duct; and then sometimes it is impossible to find the stone, owing to its having slipped back through the hepatic duct.

Out of forty-four operations the mortality has been eighteen per cent. Of the writer's three cases, all recovered.

DR. MARCY had operated only three times on the common duct. In the first case he abandoned the operation, and the patient died ten days later. In the second case he laid the entire duct open; the patient recovered. The third case died because the patient was poisoned before the operation.

The paper was further discussed by DRS. GASTON and WEEKS.

In closing, DR. FENGER said the duct should invariably be closed by a double row of sutures and drainage always adopted.

SKIN-GRAFTING AFTER THE METHOD OF THIERSCH,

by DR. J. C. OLIVER, of Cincinnati, O.

Its frequent application is limited by three causes: weak granulation, large blisters, and replacing cicatricial tissue.

EXSECTION OF THE KNEE-JOINT, WITH REPORT OF A CASE OF COMPLETE DISLOCATION OF THE KNEE, OF NINE YEARS' STANDING, WITH ESPECIAL REFERENCE TO METHODS OF FIXATION.

This paper by DR. S. F. FORBES, of Toledo, O., was interesting from the method of fixation. Nine years previously the knee was completely dislocated and never reduced. The leg was bent at an angle of forty-five degrees, shrunken and poorly developed.

The incision divided all the structures; a slice one and three-eighths inches thick was removed from the femur, and three-eighths of an inch from the end of the tibia. The surfaces were brought together; and six catgut sutures, three on each side, and one silver suture, inserted. The periosteum was drawn down and stitched with gut, and the external flap treated in the usual manner. Layers of iodoform gauze were applied; next absorbent cotton followed by flannel roller, and the whole covered with a plaster bandage reaching from the toes to the groin. Strips of wood were inserted with the bandaging.

Three weeks afterwards the bandage having become stained with discharge, upon examination it was seen that the edge of the upper cuff had necrosed and was being sloughed off. One week afterwards, the slough being detached, the silver suture was seen lying loose and was removed. Two weeks later the wound healed; and in seven weeks more the plaster was removed. The patient was discharged with a good straight limb ten weeks after the operation, and at this writing she walks without the aid of crutch or cane. She wears an iron support two inches high under the shoe.

The conclusions were, that in knee exsection direct fixation is unnecessary, and that external support gives instant and permanent fixation.

DR. MACLEAN said that while Jonathan Hutchinson of England condemns exsection, he (Dr. Maclean) had had good results following it. He uses no internal fixation; no silver wires, or ivory pegs, etc.

Replying to a question of Dr. Garcelon's, Dr. Maclean said most of his tubercular cases were old chronic ones where the active process had stopped. He had

operated on several cases where the disease was active.

Dr. Davis, of Philadelphia, wished to know what part the silver suture Dr. Forbes inserted, played in the good result. He believed the bandage should go as high as the waist.

Dr. Weeks thought if the apposing surfaces of bone were in exact position you required no internal fixation. A posterior splint of tin reaching up to the ischium was the best fixation.

In closing the discussion, Dr. Forbes said that as all the muscles were divided in this operation, he failed to see how any muscular action could disarrange the limb, and did not think it necessary to carry the bandage up to the waist.

Dr. E. A. Tracy, of Boston, described

THE NEW SURGICAL SPLINTING.

The splint is made from crushed wood-fibre. While moulding the splint the patient should be placed in the proper position; after moulding the splint is dried over a kitchen fire. Its edges should be covered with chamois, and when applied, fastened to the limb by roller bandages. Its advantages are extreme lightness, perfect adaptation to the limb, and great strength.

A SIMPLE METHOD OF DRESSING FRACTURES OF THE EXTREMITIES AUXILIARY TO THE BANDAGE.

This consisted of a practical demonstration by Dr. John E. Link, of Terre Haute, Ind.

He used shavings of birch-wood about six inches wide and ten in length. These shavings were so flexible that they could be wound around the finger. Moistened roller bandages were wound around the limb in one direction, no reversing or twisting being done. Between the various turns of the roller bandage the shavings were inserted. The shavings remained exactly where you placed them, and you obtained absolute rigidity of the limb without increasing its weight beyond that of the roller bandage.

In discussing the last two papers Dr. Thomas H. Manley, of New York, said he was glad to see plaster bandage being driven out, for he believed the number of deformities were increased by its use. The only objection to the crushed wood-fibre was its cost; which barred it from hospital use for the present. He regarded Dr. Link's shavings as the ideal treatment for fractures in children.

SECTION ON SURGERY. — FOURTH DAY.

Dr. Thomas H. Manley, of New York, read a paper on

DEFORMITIES FOLLOWING FRACTURES OF THE SHAFTS OF BONES.

In complicated fractures in adult life, more or less deformity will sometimes result regardless of the line of surgical or mechanical therapy adopted.

Cases are divided into two classes: The preventable, and those beyond our control. In the majority of cases, if we treat our cases rationally, we will secure fair restoration of function and normal contour of limb. When both bones of the forearm are completely broken, or the fracture extends through a joint, or impaction is present, can we always prevent deformity?

The author's observation of several thousand fractures inclines him to believe that in a considerable number of such cases deviation from the normal outline follows.

Hyperostosis with excessive callus is always observed in badly adjusted fractures. This not only disfigures and impairs the use of the limb, but may also lead to serious pathological conditions by pressure on the main vascular conduits and nerve-roots.

In fractured femora the great difficulty lies in being compelled to treat the patient as well as the fracture. Gross distortion generally implies maladroitness or neglect in treatment.

Non-preventable cases are those dependent on extrinsic circumstances and those following organic or constitutional disturbances. They are pathological.

Proyhylaxis is of the first importance. The problem is to preserve vitality and secure osseous repair without disturbing the reposition of the fragments.

If not attended by loss of bone or excessive shortening. rectification can be accomplished in the early stages of repair. After osseous solidification is complete it is a serious question whether radical surgical interference should be adopted as a routine treatment. It should not be done unless the functional integrity is seriously impaired or the deformity very great.

The operations are osteoclasis, osteotomy and osteectomy. These operations are valuable in young and growing subjects, but beware how they are applied to the humeral or femoral shafts of matured development. In many cases coming under the author's notice, life itself was imperilled; and in a few recovery succeeded only with a permanent ankylosis of the limb and muscular atrophy.

None of the various operations devised for correcting deformities after a Pott's, Colles' or elbow fracture promised anything in the way of improvement sufficient to compensate for the risk to life which they always involve; and a few cases which were so treated, and who afterwards came under his notice, were not only not improved, but they were worse than before the operation.

The following papers were read by title only: "Foreign Bodies in the Esophagus, and a Report of Five Esophageal Cases," by A. Vander Veer, of Albany, N. Y.; "Hypertrophy of the Thyroid Gland: An Experimental Study," by Wm. S. Halsted, of Baltimore, Md.

The following officers were elected for the ensuing year: President, C. A. Wheaton, St. Paul, Minn; Secretary, W. L. Estes, South Bethlehem, Pa.

*(To be continued.)*

## Recent Literature.

*A Text-Book of Pathology. Systematic and Practical.* By D. J. Hamilton, M.B., F.R.C.S.E., F.R.S.E. Professor of Pathology, University of Aberdeen. Macmillan & Co. 1894.

The second volume of this work in two convenient and neatly bound parts of about 550 pages each has recently appeared. The special pathology of the various organs begun in Volume I is concluded, and chapters are added on Malformations and Animal Heat and Fever.

The arrangement of the work is exceedingly unfortunate. For example, the subject of Practical Bacteriology was disposed of in Volume I, at the end of

Volume II, Systematic Bacteriology occupies a hundred pages under the heading "Diseases due to Vegetable and Animal Parasites." The bacteriology of certain diseases, however, such as diphtheria, typhoid and cholera is described in the section devoted to the Pathology of the Special Organs. The arrangement in Thoma where all bacteria are treated of in a chapter under the heading "General Etiology" is much more to be recommended.

Much space is devoted to the consideration of physiological and clinical subjects which have little or no place in a work devoted to Pathology. "Pain in Hepatic Disease" covers almost half a page; "The Act of Micturition" and "Stammering" occupy each over a page; and ten pages are given up to "The Movements of Respiration," "The Respiratory Centres," and "Respiratory Volume"; and forty-two pages to the "Morbid Conditions of the Urine." On the other hand, less than four lines are devoted to the Appendix and its lesions (although Typhlitis and Perityphlitis take up nearly half a page), and eight lines are sufficient for the Inflammatory Affections of the Pancreas.

The deficiencies of the work cannot, perhaps, be more clearly brought out than by noting the manner in which the author has treated two subjects of vital importance, namely, Lobar and Lobular Pneumonia.

Under Lobar ("croupous") Pneumonia he considers at some length Friedländer's pneumo-bacillus as the causal agent. The micrococcus lanceolatus of Fraenkel and Weichselbaum, according to Welch the only causal agent of true lobar pneumonia, is referred to in small print only as a possible occasional cause. Welch's classical monograph on the latter organism is not even mentioned. In regard to Friedländer's bacillus we think Thoma voices accurately the present opinion held by pathologists when he says that the pathogenic significance of this bacterium for man is questionable. After giving Welch's view above, what shall we say to this statement by the author? "Multiple fat embolism from a simple fracture of a bone, and in an individual with a powerful heart, frequently induces a croupous pneumonia, in all respects like that following from the action of specific agents!"

The chapter on Lobular ("catarrhal") Pneumonia shows the greatest lack of knowledge of the recent work done in this field. The exudation is described as consisting of fluid and of desquamated alveolar cells. "In cases where the disease becomes chronic, the discharge assumes a more and more solid character, the tubercle bacillus develops in its midst and caseation follows. It thus constitutes a tubercular pneumonia." Not a word is said about the various organisms concerned in the production of lobular pneumonia, the varying character of the exudation dependent on the causal agent and the outcome of each affected area as determined by the organism or organisms producing it, beyond referring to the bacteria present in lobar pneumonia.

The illustrations are numerous, but are neither very attractive nor very instructive, especially those illustrative of finer histological details. The work certainly cannot be recommended to students as a good text-book on pathology, although a standard pathology written in English is greatly needed, because the author does not treat his subjects logically from an etiological standpoint, and is not abreast of the times in his information and teaching.

THE BOSTON

# Medical and Surgical Journal.

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## TRANSFUSION OF BLOOD OR INFUSION OF SALT SOLUTION.

IN an article under this heading in the *Münchener medicinische Wochenschrift*, April 2d, von Ziemssen calls attention to the fact that in spite of simplification of method, and in spite of the considerable number of cases which he had been able to report of the curative effect of repeated transfusions of blood in the same individual, the method of infusion of salt solution is given almost uniform preference in surgical practice, and blood transfusion considered of comparatively little value in comparison. The reason for this is evident, namely, that in the majority of the surgical and obstetrical emergencies in which either infusion or transfusion must be employed, the infusion of salt solution gives a simpler and more rapid means of restoring the lost bulk of fluid in the vessels, and is, therefore, far preferable to the more complicated operation of blood transfusion. On the other hand, the effect of salt infusion is at the best only transitory, and it becomes necessary, according to von Ziemssen, in most cases to follow it sooner or later by an infusion of blood.

The indications for choosing one or the other method are usually plain. For instance, in the acute anemia resulting from sudden and profuse hemorrhage, salt infusion is to be chosen. In anemia resulting from disease of the blood-making organs, on the other hand, in which the percentage of hemoglobin and the number of red blood-corpuscles falls even below that which results from sudden and profuse hemorrhage, no one would think of resorting to salt infusion. In simple anemia resulting from profuse hemorrhage in a healthy patient, the restoration of the normal condition of the blood is immediately begun and carried on by the blood-making organs; in pernicious anemia, etc., the blood-making organs are so diseased as to be incapable of effecting repair of the blood tissue.

In case of frequently repeated hemorrhage from internal organs, as in typhoid, ulcers of the stomach, etc., salt infusion, although it momentarily restores

the heart's activity, leaves much to be desired on account of the fleeting nature of its effects.

It is in such cases as these that von Ziemssen recommends transfusion of blood. He reports the case of a patient upon whom infusion of a litre of salt solution was performed, *ex indicatione vitale*, with marked temporary improvement. The operation was performed in the evening, and the following morning the patient's condition again became critical, and a loud systolic murmur appeared at the heart's apex. An arm-to-arm transfusion of 175 cubic centimetres of blood was performed. Immediately after the operation the patient sunk very low, but was revived by an injection of camphor, and the percentage of hemoglobin was from 32 to 40 per cent. on the following day. The anemia was rather resistant to treatment, but finally yielded to subcutaneous injections of sodic arsenite, and the patient left the hospital in two months, well.

In von Ziemssen's opinion, the salt infusion in this case had an excellent, but temporary effect; and without the transfusion which followed it, the result would have been fatal. He recommends that in all cases where the effect of salt infusion is temporary, it be followed by blood transfusion, and considers it questionable to wait more than twelve hours before resorting to this procedure. He finds that even during the operation the color of the skin and mucous membranes is improved, and that the subjective feeling of improved strength is quite marked for some hours after the operation; and he considers the good effects of the transfusion to be due as much to the fact that the blood-making organs are excited to activity, as that the number of red blood-corpuscles is directly increased.

In our experience with infusion of salt solution which has been chiefly confined to surgical cases, we have found that in a very large proportion of cases the effect, though always excellent, was but temporary, and that it was necessary in order to render its effects permanent to follow it up with copious and repeated enemata of salt solution and stimulants, or even to repeat the operation. In one case of hemorrhage from the ovarian artery following a laparotomy, in which the abdomen was reopened and the ovarian artery tied, the patient being enabled to bear the operation only by means of an intravenous infusion of salt solution which was performed at the same time, the effect of the infusion was marked, and the patient was put to bed with a better pulse than she had before the operation. Three hours later, the symptoms of acute anemia — absolute pallor, restlessness, and complete failure of the pulse — again returned, and infusion was repeated with the same result as before. The result was more permanent, however, the effect being kept up by copious and repeated rectal injections of salt solution, and the case progressed to recovery. Other cases might be cited in which the same treatment was successful. Whether the stimulating effect of a transfusion of blood upon the blood-making organs would have led to a better result it is difficult to say. At any rate, the same beneficial effect was noted in these cases from repeated salt infusion, that von Ziemssen found from his blood transfusion.

It is certainly true in these cases that in the first place the vascular system is depleted by the hemorrhage; then the tissues are emptied of serum taken up by the depleted vessels in order to enable the heart to act. The pressure in the vessels is so lowered by the hemorrhage that osmosis takes place from the lymph spaces into the capillaries, so that the lymph-vessels as well as the blood-vessels are depleted. The bulk of salt solution given at the first infusion fills the blood-vessels temporarily, but is quickly taken up by the tissues, reducing the blood pressure, and again reducing the volume of fluid with which the heart has to work, and causing the symptoms of acute anemia to recur. The second infusion fills the vessels again, and the tissues being already supplied with fluid, do not absorb it from them. Hence equilibrium is restored, and the effects of the second infusion are permanent.

If a sufficient amount of fluid is injected at the first operation, the second may be unnecessary, but it will always be a good rule to follow up an infusion by copious enemata of salt solution, and, if necessary, to repeat the operation.

## A REPORT OF ONE THOUSAND EXCISIONS OF THE THYROID.

At the German Surgical Congress at Berlin, on April 17th, Kocher, of Berne, reported his results in one thousand thyroidectomies for goitre. This enormous and wholly exceptional experience, which would be hardly possible for a surgeon not a resident of Switzerland, renders his contribution to our knowledge on the question of thyroid operations of the greatest importance.

Twelve years have elapsed since he reported one hundred cases of complete extirpation of the thyroid, with observations upon the cachexia strumipriva consecutive to the radical operation.

Since that time he has abandoned the radical operation, and has practised partial extirpation of the goitre, with the result that in nine hundred cases operated on since that time cachexia strumipriva has resulted in only one case. In this case the cachexia was due to the fact that after the excision of one-half of the thyroid gland, the other half atrophied. On the other hand, all the cases of total extirpation have gone on to cachexia, except in cases where fragments of the gland have been left behind and produced recurrence of the disease. Alterations of the voice, paralysis of the vocal cords, etc., can almost always be avoided in carefully performed operations. They have been observed in seven per cent. of the cases, but have disappeared in the non-malignant types of the disease.

Eliminating the malignant cases, the mortality in eight hundred cases becomes a little higher than one per cent., eleven cases in all having died. Some of the cases were desperate when brought to the clinic

(one moribund, one intra-thoracic goitre with general edema and hydropericardium). Among other causes of death may be mentioned one of interstitial nephritis; two of influenza followed by pneumonia; three of the exophthalmic type, in whom the conditions for operation were very poor, in virtue of the size and brittleness of the vessels, so that the ligation of only three of the arteries and not of all four, was possible. He now prefers to operate by ligature of the thyroid arteries rather than by excision in these cases.

One death was due to bronchitis, after the inhalation of ether. No deaths resulted from chloroform anesthesia. Kocher always begins the anesthesia with chloroform and continues it with ether; in extremely cachetic subjects he has employed with success local anesthesia with cocaine.

Two deaths were produced by infection, both being in operations for recurrent disease. In one series of 272 operations there were no deaths. The operation is often difficult, especially when the disease extends into the thorax. For simple goitre, non-malignant, or exophthalmic, Kocher had only three deaths in nine hundred excisions, which is certainly a most excellent record.

We are to be congratulated upon the fact that prophylaxis and cure of goitre by thyroid feeding is the order of the day. The author's clinical experience has demonstrated that enlargement of the thyroid often diminishes under prolonged thyroid alimentation.

The administration of phosphates, according to the researches of the Polish physician Zakrzewski, can also lead to the atrophy of goitre. The phosphate of soda has also been given in Basedow's disease, with the result of the disappearance of the disease and its symptoms, a fact which corroborates the view that the disease is an auto-intoxication, due to an abnormal thyroid secretion, although the origin of the disease may be in an abnormal nervous impulse.

Rehn, of Frankfort-on-the-Main, has just successfully treated a case of Basedow's disease by extirpation of the tumor. Vascular goitres are very difficult of removal, and he had had three deaths from the operation. From the result of his operation in the case of Basedow's disease he is led to believe that we have to do in this disease with an auto-intoxication by the thyroid secretion.

Krönlein said that he was completely convinced of the efficacy of the treatment of Basedow's disease by excision of the thyroid. He had cured the eight cases upon which he had operated. All the symptoms did not at once disappear, the exophthalmus persisting for the longest time. In his two hundred cases of goitre he has had no deaths. After chloroform anesthesia he had sometimes seen a pneumonia, which he had not observed when ether and morphine had been employed exclusively.

Mikulicz had found that feeding with the thymus as well as the thyroid gland produced a diminution in the size of goitres. He has successfully treated eleven cases of Basedow's disease by operation. Trendelenburg, of Bonn, had operated in six cases of Basedow's disease — once by excision, which operation was followed by a severe hemorrhage; once by ligature of three arteries; four times by ligature of all four arteries. No cachexia had been produced, and all the cases had been greatly relieved by the operation. Rydygier, of Cracow, had ligatured all four arteries twenty times without producing cachexia.

## MEDICAL NOTES.

THE NEW PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS. — Mr. Christopher Heath has been elected president of the Royal College of Surgeons of England, for the remainder of the term left vacant by the death of the late Mr. Hulke.

THE GERMAN CONGRESS OF GYNECOLOGY. — The Sixth Congress of the German Association of Gynecologists will be held in Vienna June 4th to 7th ult. The subjects for discussion will be "Endometritis and Rupture of the Uterus." Clinical demonstrations will be given at Chrobak's clinic.

THE STREPTOCOCCUS ANTITOXIN. — The *Wiener klinische Wochenschrift* is informed that the streptococcus antitoxin discovered by Marmorek at the Pasteur Institute in Paris, and successfully demonstrated in experiments on animals to be a remedy for erysipelas, has already been employed in about fifty cases of this disease in the hospitals of Paris, with most excellent results.

THE PURIFICATION OF DRINKING WATER. — According to *La Médecine Moderne*, at a discussion at the French Academy of Sciences on the question of furnishing pure drinking water to the French troops in Madagascar, M. Friedel presented a new disinfectant, "monol," by which it was possible to render swamp water, or even water impregnated with vegetable poisons, pure, palatable and harmless.

SPLENOPEXY. — At the German Surgical Congress Rydygier, of Cracow, reported that he had successfully performed splenopexy three months before on a patient with a movable spleen. Splenopexy is a difficult operation on account of the danger of hemorrhage. Rydygier made an incision in the median line and dissected up the peritoneum at the level of the eleventh and twelfth ribs, so making a pocket in which he lodged and fixed the spleen. The fixation sutures were passed through the gastro-splenic ligament. Up to time of report the spleen had remained in place.

A MAN WITH FIVE HUNDRED SPLEENS. — Albrecht[1] reported at the Vienna Medical Society on April 26th, the autopsy on a man of twenty-five years who had died of chronic nephritis, in whose abdominal cavity were found five hundred spleens of various sizes, some so small as to be hardly visible, and others varying from the size of a pin-head to that of a walnut. The largest spleen, the size of a walnut, lay in the position of the normal spleen, and was provided

[1] Vienna correspondent of the Münchner med. Wochenschrift.

with the regular splenic artery and vein. The earlier reported cases of accessory and multiple spleens have shown that the additional spleens were situated in the positions which their development would render probable, but in this case they were scattered all over the peritoneal cavity right and left, in the diaphragm, on the suspensory ligament and in the capsule of the liver, in the greater omentum, along the descending colon and ileum, even in Douglas's pouch. The tissue of these scattered spleens was indubitably proved by microscopical examination to be true splenic tissue.

The Albert Medal of the British Society of Arts. — Sir Joseph Lister was on April 9th presented with the Albert Medal of the Society of Arts by the Prince of Wales, as president of the Council of the Society. The medal was awarded to Sir Joseph Lister in recognition of "the discovery and establishment of the antiseptic method of treating wounds and injuries, by which not only has the art of surgery been greatly promoted and human life saved in all parts of the world, but extensive industries have also been created for the supply of materials required for carrying the treatment into effect."

Antitoxin in the Antipodes. — In the *Australasian Medical Gazette* of March 15th is an account of six cases of diphtheria treated with Behring's and Aronson's antitoxin at the Sydney Children's Hospital. Three of the cases are classed as very serious, and in three of them tracheotomy was required. Five of the cases recovered, and one died of post-diphtheritic cardiac paralysis after the local condition had considerably improved. Out of six cases treated at the Brisbane Children's Hospital, two died. At the meeting of the Queensland Medical Society of February 12th, a committee was appointed to request the colonial secretary that the government bacteriologist be asked to undertake the manufacture of antitoxin.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, May 22, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 51, scarlet fever 26, measles 122, typhoid fever 9.

Examination for the Massachusetts Medical Society. — The usual annual examination for admission to the Massachusetts Medical Society will be held by the Censors of the Suffolk District on Thursday, June 6, 1894, at 2 P. M., at 19 Boylston Place.

The Small-pox Epidemic at Claremont, N. H. — The origin of this epidemic illustrates very well the method of the sudden outbreaks of small-pox in places remote from the original source of the disease. Dr. Irving A. Watson, the Secretary of the New Hampshire State Board of Health, reports that the disease was brought to Newport, N. H., by a man who returned from Chicago, and came down with small-pox immediately after his return, the case not being recognized as small-pox. A man to whom he communicated the disease proved to be a walking case, and distributed small-pox in the town of Claremont. A woman who likewise contracted the disease from the first case, distributed it in the town of Croydon, so that two rather active local epidemics were started.

Public Health in Connecticut. — The *Bulletin* of the Connecticut State Board of Health for April, 1895, states that: "The month of April was notable for several epidemics in various parts of the State. One reported by Health Officer Fitzgibbons, of scarlet fever in Bridgeport, originated in a public school. It was necessary to close the school. Another of scarlet fever was reported by Dr. H. E. Wilcox, Health Officer of Windham, in which he thinks there may have been 600 cases, although only 231 were reported to him. Notwithstanding the extensive spread of this disease, there have been but few deaths, so mild is the type of the disorder at this time. Dr. Congdon, Health Officer of Salem, reports scarlet fever 'developed one year after exposure.' The probable fact is, a recent exposure to some wearing apparel, that had not been disinfected. Whooping-cough is epidemic in East Haddam and New Canaan." The epidemics of typhoid fever at Stamford and New Milford, both due to infected milk, have already been noted in the Journal for May 9th and May 16th respectively. With regard to the latter epidemic the *Bulletin* states that: "In this outbreak the physicians of the town neglected to report their cases to the health officer, on the excuse that they did not know the disease was typhoid fever. Hence the extent of the epidemic was not recognized until it attracted public attention. Immediate reports to the health officer and prompt suppression of the sale of the infected milk would probably have prevented a part of the cases. There could not well be a more convincing illustration of the importance of some authoritative supervision of the ways and methods of milk production for public use. So long ago as 1881, fifty typhoid epidemics from infected milk had been traced in England, and now all English dairies are subject to the supervision and control, in a sanitary sense, of health officials."

### NEW YORK.

Licenses for Dental Practice. — The Legislature has passed and the Governor has signed a bill vesting the power to grant licenses to practise dentistry in a State Board of Dental Examiners, and assimilating the licensing of dentists to the licensing of physicians.

The Appropriation for the Dependent Insane. — The State Senate has passed the bill of the Finance Committee providing the annual appropriation for the care and maintenance of the dependent insane. The bill imposes a tax of one mill on each dollar of real estate and personal property, and the total sum to be raised is $4,200,000 an increase of $2,800,000 over last year, owing to the taking in under the State Care Act of the insane of New York and Kings Counties.

Public Health of New York. — The reports of the Bureau of Vital Statistics show a very satisfactory state of the public health. During the week ending May 18th there were 771 deaths, which is 44 less than in the preceding week, and 109 less than the average for the corresponding weeks of the past five years. The mortality from pneumonia, however, still continues high. During the week 123 deaths from it were reported, which is 24 more than occurred from phthisis. Diphtheria was the cause of 36 deaths.

Dr. Bozeman's Button Suture. — On May 12th a considerable number of medical friends were present at St. Francis Hospital, Jersey City, where Dr. Nathan Bozeman, of New York, operated for the closure of a vesico-vaginal fistula; applying, as usual, his button suture. In his invitations to the operation Dr. Bozeman announced that this date was the fortieth anniversary of the invention and employment of the button suture as a strictly aseptic suture for all forms of perforating lesions in the walls of the vagina and cervix uteri.

A Case of Quadruplets. — A German Jewess in Brooklyn, a patient of Dr. Louis Pulvermacher, recently gave birth to four children at a time. Drs. A. S. Nicholson and C. C. Henry were called in consultation, but the labor proved fatal. Of the four children, three were males and one a female, and two of them died shortly after birth. The two surviving infants were doing well, according to the last reports. Each of the quadruplets weighed more than four pounds, and their combined weight was eighteen and a half pounds. The mother was a little past forty years of age and had previously given birth singly to five children, all of whom are now living. The oldest is eighteen years old.

Columbia University. — At a meeting of the trustees of Columbia University held May 6th, President Seth Low announced that he would donate, as a memorial of his father, the late A. A. Low, of Brooklyn, the sum of $1,000,000 for the erection of the new library of the University. It was also announced that Mr. Wm. C. Schermerhorn, Chairman of the Board of Trustees, had made a gift of $300,000 for the erection of the Natural Science building, or any other building that might be selected by the board. On the recommendation of the National Academy of Sciences the trustees voted to make the first award of the Barnard medal for the most important discovery in physical or astronomical science to Lord Rayleigh, the discoverer of argon, a constituent of the atmosphere. The late Dr. F. A. P. Barnard, President of Columbia, in his will provided for the award every five years, beginning in 1895, of a gold medal for "Meritorious Service to Science," the competition being open to citizens of all countries.

Public Baths. — At a meeting of the Board of Health held May 2d, action was taken in regard to the erection of free public Baths in various parts of the city. A recent act of the Legislature makes provision for such baths, and the Board decided to ask the Board of Estimate and Apportionment to purchase land and build seven houses. President Wilson called in consultation Mr. John P. Faure and Prof. Wm. H. Tolman, of the Committee of Seventy's Sub-committee on baths, and also Dr. Simon Baruch, who has devoted much attention to the subject of balneology. Mr. Faure presented a report, based on the work of his committee, showing the great need of public baths, especially on the crowded tenement districts of the east-side. The recommendations were as follows: "Bath-houses to be built on an ordinary city lot, 25 by 100 feet, to have two stories suitable for at least forty baths, twenty on each floor, in addition to spray baths for children in the basement. The baths on the street level should be arranged for men, those on the second floor for women. The spray or rain-water system of baths should be adopted because there is no waste of water. The cost of erection should be very moderate, and the system is characterized by cleanliness and simplicity. The bath-houses should contain divisions for the use of the cleanly and of those not cleanly. Each should have a system of fumigating clothes when necessary. In tenement districts public wash-houses should be opened in connection with the baths, thereby relieving many homes of one and two rooms of the unhealthy conditions of laundry work." Six sites for the proposed bath-houses were also recommended. Dr. Baruch said that much good had been accomplished by the various baths already provided by some of the charitable societies. He estimated that seven buildings of ample size could be erected for $140,000. The Committee of Seventy's estimate was $25,000 for each house. The question of introducing baths in the public school buildings was also discussed, and the proposed plans for this were heartily approved by the Board.

## Miscellany.

### RECENT MEDICAL LEGISLATION IN MINNESOTA.[1]

That Minnesota is in the van of progress as regards keeping up a high standard of attainments among those allowed to practise medicine within the State, has been acknowledged ever since the passage of the first medical practice act ten years ago. By that act applicants for a license must have attended at least three courses of lectures of six months each. The legislature just adjourned has gone a step farther, and has passed a bill providing that of all graduates of a later date than 1898 must have attended at least "four courses of medical lectures, in different years, of not less than six months' duration." From this it is evident that no student who after this year enters a medical school with a three years' course will be admitted to practise medicine in Minnesota unless he does enough post-graduate study to comply with the requirements.

The legislature was also liberal to the Medical Department of the State University, and gave it a grant

[1] Northwestern Lancet.

of $40,000 for the purpose of building a laboratory. This makes a total of $150,000 appropriated for buildings alone for this department during the last four years.

## THERAPEUTIC NOTE.

QUININE IN WHOOPING-COUGH. — G. Theodor Fischer, of Rochester, N. Y., influenced by the monograph of Baron in the *Berliner klin. Wochenschrift*, 1893, No. 48, on this subject, has employed the treatment and dosage recommended by Baron, since June, 1894, in his practice at Rochester, N. Y., in twenty-seven cases. In summing up his experience in an article in the *New York Medical Journal* for May 11, 1895, he comes to the conclusion that quinine, given in proper doses, is the best remedy for whooping-cough at present known, for the following reasons:

(1) It diminishes the number of attacks essentially in five days at latest; (2) it reduces even the most vehement whooping-cough to a mild bronchitis in twelve to fifteen days; (3) it influences most favorably a possibly existing broncho-pneumonia; (4) it often stimulates the appetite.

# Correspondence.

## COLLODION IN PLASTIC OPERATIONS.

SALEM, May 13, 1895.

MR. EDITOR: — A quarter of a century ago, there appeared in the JOURNAL (April 14, 1870) a decidedly original and readable article on "The Surgical Lessons of the Late War," by Dr. Asterisk, A.M., M.D., LL.D.

His paper illustrated in a most graphic manner the value of *ichthyocollæ preparata Spaldingii* in medical and surgical practice; but, like many much-vaunted new remedies, this one has apparently passed into oblivion.

Speaking seriously, there is a therapeutic agent of undoubted value in many cases of plastic surgery that is less employed than its merits deserve; reference is made to the officinal collodium of the *United States Pharmacopœia*.

By its use the inconvenience and pain of sutures can frequently be dispensed with. For example, when inversion of the lower eyelid is present, as is not uncommon in elderly people, and which naturally causes much annoyance, it is sufficient (Noyes), not infrequently, to apply two or three coats of collodion on the skin below the in-turned lashes, and repeat its application every two or three days for some weeks, till either relief follows or the patient consents to have a strip of skin excised. When the latter is done, fibres of cotton saturated with the collodion will keep the edges of the wound in perfect apposition during the healing process, sutures not being called for.

Its contractile property is also of value after the out-scooping of cysts on the eyelids. They are ordinarily incised through the tarsal surface, and when evacuated the sac sometimes becomes much distended by hemorrhage and occasionally an abscess is the sequel. Collodion applied on the skin over the site of the chalazion expels the blood and brings the walls together and so promotes immediate union. This is favored by inserting a drop of castor oil in the line of the incision, which it tends to keep open for a day or two.

Since calling attention in these columns a year or two ago to the use of collodion on distended tear-sacs it has, in several instances, continued to be of help in abridging the treatment of this not uncommon affection.

Very respectfully,

DAVID COGGIN, M.D.

## METEOROLOGICAL RECORD,

For the week ending May 11th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps: —

| Date. | Barometer: Daily mean. | Thermometer: Daily mean. | Thermometer: Maximum. | Thermometer: Minimum. | Relative humidity: 8.00 A.M. | Relative humidity: 8.00 P.M. | Relative humidity: Daily mean. | Direction of wind: 8.00 A.M. | Direction of wind: 8.00 P.M. | Velocity of wind: 8.00 A.M. | Velocity of wind: 8.00 P.M. | Weather*: 8.00 A.M. | Weather*: 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S .. 5 | 30.36 | 44 | 47 | 42 | 94 | 100 | 97 | N.E. | N.E. | 11 | 8 | O. | R. | .38 |
| M.. 6 | 30.26 | 62 | 82 | 43 | 86 | 54 | 70 | S.W. | S.W. | 5 | 13 | O. | C. | |
| T.. 7 | 30.14 | 73 | 87 | 59 | 72 | 72 | 72 | S.W. | S.W. | 12 | 17 | C. | C. | |
| W.. 8 | 30.00 | 75 | 87 | 63 | 72 | 63 | 68 | W. | S.W. | 12 | 16 | C. | O. | |
| T.. 9 | 29.89 | 76 | 88 | 65 | 76 | 62 | 69 | W. | S.W. | 10 | 8 | O. | C. | |
| F..10 | 29.90 | 76 | 86 | 66 | 44 | 44 | 44 | N.W. | S. | 5 | 13 | C. | C. | |
| S...11 | 29.75 | 79 | 90 | 68 | 49 | 74 | 62 | W. | S. | 2 | 18 | C. | C. | |
| ☞ | | | | | | | | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 11, 1895.

| Cities. | Estimated population. | Reported deaths in week. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diarrheal Diseases. | Diphtheria and croup. | Measles. |
|---|---|---|---|---|---|---|---|---|
| New York | 1,956,000 | 815 | 340 | 14.64 | 21.96 | 1.56 | 6.72 | 2.88 |
| Chicago | 1,800,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,487 | 454 | 143 | 10.12 | 13.86 | 1.76 | 4.18 | — |
| Brooklyn | 1,043,940 | 384 | 134 | 12.75 | 20.00 | 1.75 | 8.50 | 1.50 |
| St. Louis | 540,000 | — | — | — | — | — | — | — |
| Boston | 501,107 | 218 | 71 | 6.44 | 32.54 | .46 | 3.68 | .46 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 2?5,000 | 81 | 23 | 3.69 | 8.61 | 1.23 | — | 1.23 |
| Cincinnati | 325,000 | 133 | 41 | 9.00 | 15.00 | 5.25 | — | .75 |
| Cleveland | 325,000 | 105 | — | 9.50 | 6.65 | 1.90 | .95 | .95 |
| Pittsburg | 272,000 | 92 | 31 | 8.7? | 14.17 | — | 2.18 | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 26 | 8 | — | 17.85 | — | — | — |
| Charleston | 65,165 | 30 | 6 | 10.00 | 3.33 | 10.00 | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 28 | 13 | 10.71 | 17.85 | 3.57 | — | — |
| Fall River | 92,233 | 29 | 10 | 10 35 | 24.15 | 6.90 | 3.45 | — |
| Lowell | 90,613 | 28 | 10 | 3.57 | 7.14 | 3.57 | — | — |
| Cambridge | 79,697 | 34 | 12 | 7.88 | 10.?2 | — | — | — |
| Lynn | 65,123 | 12 | 6 | 1.66 | 6.25 | — | — | — |
| Springfield | 50,?84 | 15 | 4 | 6.66 | 6.66 | — | — | 6.66 |
| Lawrence | 49,909 | 18 | 7 | 22.22 | 11.11 | 16.66 | — | — |
| New Bedford | 47,741 | 20 | 7 | — | 10.00 | — | — | — |
| Holyoke | 45,348 | — | — | — | — | — | — | — |
| Brockton | 39,939 | 8 | 2 | 12.50 | 25.00 | — | — | — |
| Salem | 33,158 | 12 | 3 | 12.50 | 6.25 | 6.25 | 6.25 | — |
| Haverhill | 32,925 | 8 | 5 | 25.00 | — | — | 12.50 | — |
| Malden | 30,209 | 8 | 1 | — | 12.50 | — | — | — |
| Chelsea | 29,?06 | 17 | 5 | — | 11.76 | — | — | — |
| Fitchburg | 29,?03 | 12 | 2 | — | 12.50 | — | — | — |
| Newton | 28,?57 | 8 | 0 | 12.50 | 25.00 | — | 12.50 | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 5 | 2 | — | — | — | — | — |
| Waltham | 22,058 | 8 | 1 | — | 12.50 | — | — | — |
| Quincy | 19,542 | 10 | 2 | 30.00 | 10.00 | — | 20.00 | — |
| Pittsfield | 18,802 | — | — | — | — | — | — | — |
| Everett | 16,585 | 5 | 2 | — | 20.00 | — | — | — |
| Northampton | 16,331 | 5 | 1 | — | — | — | — | — |
| Newburyport | 14,073 | 6 | 1 | — | 16.66 | — | — | — |
| Amesbury | 10,920 | 1 | 1 | — | — | — | — | — |

Deaths reported 2,752; under five years of age 933; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 313, acute lung diseases 477, consumption 322, diphtheria and croup 130, diarrheal diseases 56, measles 37, scarlet fever 34, whooping-cough 16, typhoid fever 19, erysipelas and cerebro-spinal meningitis each 8, small-pox 5.

From scarlet fever New York 13, Philadelphia and Providence 5 each. Pittsburg 3, Boston, Cleveland and Cambridge 2 each. Washington and Medford 1 each. From typhoid fever Philadelphia 4, New York and Cleveland 3 each. Brooklyn and Pittsburg 2 each. Boston, Cincinnati, Providence, Lawrence and Quincy 1 each. From whooping-cough New York 6, Philadelphia 4, Brooklyn 3, Boston, Cincinnati and Haverhill 1 each. From cerebro-spinal meningitis New York, Worcester and Lynn 2 each. Cleveland and Somerville 1 each. From

erysipelas New York 5, Philadelphia, Pittsburg and Brockton 1 each. From small-pox Philadelphia 3, Cincinnati 2.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending May 4th, the death-rate was 17.5. Deaths reported 3,551; acute diseases of the respiratory organs (London) 290, whooping-cough 90, measles 80, diphtheria 49, diarrhea 39, fever 24, scarlet fever 22, small-pox (London) 1.

The death-rates ranged from 10.6 in Nottingham to 26.7 in Burnley, Birmingham 16.9; Bolton 20.1; Bradford 16.6; Bristol 13.3, Gateshead 15 2, Hull 21.4, Leicester 12.4, Liverpool 23.2, London 23.9, Newcastle-on-Tyne 16.6, Manchester 23.9, Portsmouth 11.9, Sheffield 18.4.

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## OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING MAY 15, 1895.

W. A. WHEELER, surgeon, detailed as Chairman Board for physical examination of applicants for appointment in Revenue Cutter Service, May 13, 1895.

J. H. WHITE, passed assistant surgeon, detailed as Recorder Board for physical examination of applicants for appointment in Revenue Cutter Service, May 13, 1895.

P. M. CARRINGTON, passed assistant surgeon, granted leave of absence for fourteen days, May 4, 1895.

J. O. COBB, passed assistant surgeon, granted leave of absence for fourteen days, May 1, 1895.

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## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 11, 1895, TO MAY 17, 1895.

CAPTAIN CHARLES RICHARD, assistant surgeon, will when relieved from duty at the Military Prison, Fort Leavenworth, Kansas, proceed to and take station at St. Louis, Missouri, for duty as attending surgeon, and examiner of recruits.

CAPTAIN PETER R. EGAN, assistant surgeon, is relieved from duty at Fort Custer, Montana, and ordered to Fort Assiniboine, Montana, for duty, relieving MAJOR CHARLES B. BYRNE, assistant surgeon. MAJOR BYRNE on being thus relieved is ordered to Fort Snelling, Minn., for duty.

MAJOR WILLIAM C. SHANNON, surgeon, upon the expiration of his present leave, is ordered to Fort Custer, for duty.

FIRST LIEUT. DRANE C. HOWARD, assistant surgeon, will be relieved from duty at Fort Snelling, Minn., upon the arrival there of MAJOR CHARLES B. BYRNE, surgeon, and will then proceed to Fort Custer, Montana, and report for duty, at that post.

CAPTAIN ALONZO R. CHAPIN, assistant surgeon, having been found by an Army Retiring Board incapacitated for active service on account of disability incident to the service, is by direction of the President retired from active service this date, May 10, 1895.

Leave of absence for four (4) months, to take effect on being relieved from duty at Fort Thomas, Kentucky, is granted CAPTAIN WILLIAM J. WAKEMAN, assistant surgeon, U. S. Army.

Leave of absence for one month and fifteen days, to take effect on or about June 16, 1895, is granted MAJOR WILLIAM E. WATERS, surgeon, U. S. Army.

The extension of leave of absence on surgeon's certificate of disability, granted MAJOR WASHINGTON MATTHEWS, surgeon, is further extended four months, on surgeon's certificate of disability.

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## AMERICAN SURGICAL ASSOCIATION.

Programme of the Annual Meeting to be held at the New York Academy of Medicine, Nos. 17 and 19 West 43d Street, New York, May 28, 29 and 30, 1895. Members of the Medical Profession are cordially invited to attend the meetings of the Association, except when it is in the Executive Session.

### TUESDAY, MAY 28th.

*Session* 9.30 A. M. *to* 1 P. M. — Roll Call. President's Address. Executive Session. Discussion on the Operation for the Radical Cure of Hernia. By Drs. William T. Bull, of New York, Charles McBurney of New York, Henry H. Mudd, of St. Louis, John E. Owens of Chicago and John H. Packard of Philadelphia. Results of the Treatment of Hypertrophy of the Prostate Gland by Castration, Dr. J. William White, of Philadelphia. Discussion by Drs. L. S. Pilcher, of Brooklyn, Roswell Park, of Buffalo, and William S. Halsted, of Baltimore. Operative Treatment of Cancer in Various Localities: 1. Anatomical Arrangement of the Lymphatic Vessels in the various regions, by Dr. F. H. Gerrish, of Portland, Me.

Clinic at Bellevue Hospital, 2 to 3.30 P. M. (Dr. Dennis and the Visiting Staff.) Clinic at Presbyterian Hospital, 4 to 5.30 P. M. (Drs. McCosh and Bridden with Drs. Pilcher and Wight.)

### WEDNESDAY, MAY 29th.

*Session* 9.30 A. M. *to* 11 A. M. — Operative Treatment of Cancer in Various Localities (continued): 2. The Female Genital Organs including the Uterus and Vulva, Dr. John Homans, of Boston. 3. The Lips, Tongue, Floor of Mouth and Pharynx, Dr. P. S. Conner, of Cincinnati. 4. The Breast, Dr. J. S. Wight, of Brooklyn. 5. The Male Genitals, Dr. Hunter McGuire, of Richmond, Va.

Clinic, New York Hospital, 11.30 A. M. *to* 1 P. M. (Drs. Weir, Bull, Hartley and Murray with Drs. Gerster and Abbe.) Clinic, Roosevelt Hospital, 59th Street and 9th Avenue, 3 to 5 P. M. (Dr. McBurney, with Drs. Lange, Fowler and Rushmore.)

### THURSDAY, MAY 30th.

*Session* 9 30 A. M. *to* 1 P. M. — Operative Treatment of Cancer in various Localities (continued): 7. The Rectum, Dr. Arpad G. Gerster, of New York. Discussion by Drs. L. McLane Tiffany of Baltimore, Theodore A. McGraw of Detroit, C. H. Mastin, of Mobile, and L. S. Pilcher of Brooklyn. The Present Status of Anesthesia: 1. Circumstances under which chloroform is preferable to Ether as an Anesthetic, Dr. G. W. Gay, of Boston. 2. Influence of Ether upon the Kidneys, Dr. Robert F. Weir, of New York. Discussion by Drs. T. F. Prewitt of St. Louis, H. R. Wharton of Philadelphia, J. D. Rushmore of Brooklyn, Robert Abbe of New York and F. E. Lange of New York. Discussion on the Restoration of Joint Function after Fracture. By Drs. W. H. Carmalt of New Haven, L. A. Sayre of New York, N. P. Dandridge of Cincinnati, J. B. Roberts of Philadelphia, E. H. Bradford of Boston and John Ashhurst, Jr., of Philadelphia.

*Afternoon*, 3 P. M. The Bacteriological Aspects of Pus and Suppuration, Dr. Roswell Park, of Buffalo. Discussion by Drs. W. S. Halsted of Baltimore, L. M. Tiffany of Baltimore and John Parmenter of Buffalo. Gunshot Wounds of the Heart, Dr. Claudius H. Mastin, of Mobile. Injuries to Pneumogastric and Phrenic Nerves, Dr. Roswell Park, of Buffalo. Dislocation of the Ulnar Nerve at the Elbow, Dr. Henry W. Wharton, of Philadelphia. Ligature of the Innominate Artery, with the Report of a Case, Dr. H. L. Burrell, of Boston. Immediate Suture of the Gall-Ducts and the Gall Bladder after Extraction of Stones, with Cases, Dr. J. W. Elliot, of Boston. A Case of Cholecystotomy, Dr. S. H. Weeks, of Portland, Me. Personal Experience with Mad Dogs, Dr. Basil Norris. Hernia of the Bladder as met with during Operations for Inguinal and Crural Hernia, Dr. Christian Fenger, of Chicago. The Radical Cure of Hernia by a New Procedure, Dr. John H. Packard, of Philadelphia. Ligature of the Spermatic Cord in the Treatment of Hypertrophy of the Prostate, Dr. J. Ewing Mears, of Philadelphia. Congenital Esophageal Pouch, Excision, Immediate Suture of Esophagus, Recovery, Dr. S. J. Mixter, of Boston.

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## RECENT DEATH.

GEO. A. PERKINS, M.D., M.M.S.S., died at Salem, May 18th, aged eighty-two. He graduated in medicine at Harvard in 1844, and went to West Africa as a medical missionary. He returned to Salem in 1849, and practised there until 1863, when he became post-surgeon at Forts Lee and Pickering. He was interested in macroscopy and chemistry, and was a member of numerous scientific and social organizations. He was one of the original staff of the Salem Hospital.

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## BOOKS AND PAMPHLETS RECEIVED.

The Surgical Treatment of Spina Bifida. By Henry O. Marcy, M.D., of Boston, Mass. Reprint. 1895.

Nerve-Suturing — Neurorrhaphy — Nerve-Grafting. By De Forest Willard, M.D., Ph.D., of Philadelphia. 1894.

The Differential Diagnosis of Traumatic Intracranial Lesions. By Charles Phelps, M.D., New York. Reprint. 1895.

The Influence of Pregnancy upon Dental Caries. By Reuben Peterson, M.D., Grand Rapids, Mich. Reprint. 1895.

The Spinal Cord Lesions and Symptoms of Pernicious Anemia. By Charles W. Burr, M.D., Philadelphia. Reprint. 1895.

On a Modification of the "Invagination" Method of Operating for the Radical Cure of Hernia. By John H. Packard, M.D. 1895.

A New Method of Examination and Treatment of Diseases of the Rectum and Sigmoid Flexure. By Howard A. Kelly, M.D., of Baltimore. Reprint. 1895.

Transactions of the American Pediatric Society, Sixth Session, held at Washington, D. C., May 29, 30, 31, and June 1, 1894. Edited by Dillon Brown, M.D., New York. Vol. VI. Reprint. 1894.

# Original Articles.

## TRANSVERSE SEPTA OF THE VAGINA.[1]

BY A. K. STONE, M.D.

During the summer of 1893 there came to the out-patient clinic at the Massachusetts General Hospital three cases of transverse septum in the vagina. All three occurred in young women who had never borne children, and in none was there any history of injury or instrumentation which would account for the condition. The rarity of this anomaly was forced upon me, for, questioning a number of gynecologists and obstetricians in Boston, Baltimore and Washington in regard to the frequency with which they had met transverse septa, with very few exceptions they stated that they had never seen such a condition.

While visiting the Columbia Hospital in Washington, in company with Dr. J. F. Scott, I chanced to mention the subject; and the house physician, Dr. Murphy, said that such a case was then in the hospital, and that he had seen still another in the out-patient clinic. Dr. Scott has since then seen a case in private practice. With great kindness he has placed his cases at my disposal, and I take this opportunity to acknowledge his courtesy.

My cases are briefly as follows:

Case I was an unmarried woman of twenty-one or twenty-two years, who came to the examining-table because of symptoms which made me suspect the possibility of pregnancy. She was well developed, and everything about the external genitals appeared normal. The hymen was not intact. About two inches from the introitus the examining finger came upon a barrier to further advance. Finally a small opening was found which with considerable difficulty allowed the admission of the tip of the finger, which could then be made to feel the os beyond. The os was soft and the uterus enlarged, and pregnancy of about four months diagnosed. With the speculum the obstacle which had prevented the free examination was found to be a thin membranous septum completely blocking the whole lumen of the vagina with the exception of a small central opening. The membrane was elastic and had no different appearance from the rest of the mucous membrane of the vagina. Anteriorly the septum was in close connection with the vaginal portion of the cervix. There was no thickened portion that would in any way make one suspect the septum to be of inflammatory origin. All injuries were denied. Menstruation had always been regular and normal up to the time of the pregnancy. I lost track of the patient in spite of my attempts to have her confined at the Boston Lying-in Hospital; and as she also changed her address, I have not been able to obtain any account of the confinement.

Case II was a young unmarried woman who feared pregnancy, and was in every way a duplicate of the first case, excepting that there appeared to be a few bands running from the cervix and connecting with the membranous septum. Menstruation here had been normal. This patient, too, has been lost sight of, in spite of attempts to trace her.

In each of these cases the opening through the septum was of nearly one-half inch in diameter, and the edges were thin and sharp, and presented no inflammatory conditions. The septum formed an almost closed pouch at the upper portion of the vagina, into which if the semen once gained entrance, there would be a condition most favorable for conception.

Case III is somewhat different. This patient had a uterine displacement and some endocervicitis consequent to this. Examination of the cervix was attended with great difficulty, from the constant tendency of the speculum to slip. Careful investigation into the cause of this showed that about two inches from the introitus there was a distinct narrowing of the lumen of the vagina by a ridge of tissue. This ridge was scarcely perceptible to the examining finger when introduced in the ordinary manner, but a distinct thickening could easily be made out if the finger was passed so as to press against the vaginal wall. There was no history here of previous injury or of any operation. Neither was there any tendency to contraction. The ring was so high up that when the Sims speculum was introduced the tip caught upon the ridge, and instead of falling into the posterior cul-de-sac slipped forwards. Hence the difficulty which led to the discovery of the condition.

Dr. Scott's cases are as follows:

Case I was a colored girl about eighteen, who was well formed and well developed. She had always menstruated regularly and had never known that she was in any way different from other girls. She presented herself at the Columbia Hospital, in Washington, early in November, 1893, being then nearly at full term. On examination the os could not be found, but about one and three-quarters inches from the entrance of the vagina the finger came against a smooth, soft, yielding membrane which completely occluded the vagina. At the centre alone there was a little roughness. Examination with the speculum showed a small opening which would admit the entrance of a uterine probe. The edges of the opening were somewhat thickened, as though at some time there had been a slight inflammation. The membranous septum could not be stretched enough to make a bimanual examination to determine the position of the head of the fetus. About a week later, labor pains came on and the os evidently dilated in a perfectly normal manner, for the head entered the vagina and bulged the septum, which held firm and resisted for several hours the further advance of the head. A probe-pointed bistoury was passed through the opening, and the membrane was slit in several directions to the vaginal wall and the remainder of the labor was rapid and normal.

Case II was a white woman, age thirty-three, who had been married for two years. Menstruation first appeared at fourteen, but was not seen again until she was seventeen. At this time she suffered severely, and the lower abdomen swelled considerably, and at times there was difficulty of urination. With the recurrence of menstruation at seventeen, "there was an awful quantity of it, and the flow was black and tarry." Since then there have been several periods of intermission in the flow. When first seen she was habitually suffering with free menstruation continuing for fifteen days at a time. The menstrual flow was described as being like "coffee grounds." There was severe pain all this time, but no clots were passed. After the "tarry-like" flow had ceased a very offensive flow, like the "yolk of an egg," followed. The

[1] Read, by invitation, before the Obstetrical Society of Boston, March 9, 1895.

patient was habitually constipated, often going for twenty days without any movement of the bowels.

Passing the finger into the vagina an obstruction to its further advancement was met at the depth of one and one-half inches from the hymeneal orifice. With the aid of the speculum an opening to the right and anterior to the centre was found, which just admitted the passage of a uterine sound into a spacious cavity beyond. By rectum the uterus was to be felt, small and straight and much flattened and in comparatively normal position. There were no adhesions, and the uterus was freely movable.

An operation was performed April 6, 1894, under chloroform. A probe-pointed bistoury was used to cut the opening large enough to introduce the finger. A catheter was passed into the bladder to define the course of the urethra, and then the opening was much enlarged. The septum was very dense and tight, and fully one-eighth of an inch thick. After cutting, the parts were forcibly distended by the fingers to the normal size of the vagina. The vaginal mucous membrane retracted much both upwards and downwards from the cut septum. The vagina was then packed snugly with iodoform gauze, and the denuded surface left to granulate. The packing was removed daily, and the vagina washed with lysol (1–100) and repacked.

Since the operation the patient states that the tenderness in the lower abdomen, which she has had for years, has disappeared.

The literature of this subject, with one exception, is confined to the reports of single cases; and it is rare that any one man has had an opportunity to see more than two such cases. Therefore it may be of interest to give a partial *résumé* of some of the cases already reported, in addition to the above-mentioned five cases.

Amédee Maurin, in 1875, reported a septum with three openings more than half-way up the vagina. This patient had menstruated regularly, but had had no children. The septum was removed, and there was no further history. This case is interesting, as the reporter thinks that the septum was due to an inflammatory process which was the result of small-pox which the patient had contracted at the age of twelve, though there was no direct history to be obtained to point to such a conclusion.

More recently Dr. Osmont, of Caen, has reported a case where a woman of thirty was confined, and after a long labor was delivered by forceps. Later she presented herself at the hospital with a recto-vaginal fistula, and with a transverse septum in the vagina still intact. The head had descended until it had reached the septum, and after several days had torn through the posterior wall of the vagina and so, *via* the rectum, had passed round the obstruction and into the vagina again, whence the instrumental delivery took place. The septum in this case had a small opening, and menstruation had been regular since the age of fourteen. This septum was situated three and a half centimetres above the hymen.

Ostermann states that he has found for the most part that the septa occur in the upper third of the vagina, though he found that there had been but little work done upon the subject in France and still less in Germany. In the discussion of this paper Oderbrecht reported a case occurring in the upper third of the vagina where the woman was sterile. The septum was cut, and a favorable result was obtained. Here the opening would simply admit of a probe, and the menstruation was painful. Grimm, at the same time, reported a case which he has under observation at the present time. The patient was a Japanese girl of eighteen; and though there was only a pin-hole opening through the membrane, there were no unpleasant symptoms at the menstrual period.

In three successive years cases were reported to the Obstetrical Society in London. In Smith's case the catamenia had been regular, though scanty and accompanied with some pain. The patient had been married for a number of years, and coitus had probably taken place through the urethra, which was dilated so that it admitted two fingers with ease. One and one-half to two inches above the vaginal opening there was a membrane, which at time of delivery and at previous outpatient examination presented no opening. In one part there were some apparent granulations which may have covered an opening previously present, otherwise there must have been some communication *via* the bladder. The patient came to the hospital while in labor. The septum was divided and dilated, and a safe delivery effected.

Boulton's case was evidently one where the remains of a longitudinal septum played an important part. The patient came to the clinic saying that she was not like other women, for after the regular menstrual flow, which lasted for three days, she had a discharge of "green waters" for several days. A septum was found, one and one-half inches in depth, in which no opening could be detected with the examining finger. When, however, the vagina was dilated with a speculum, two small openings were found on either side of the vagina; and on further examination it was found that a triangular shaped septum extended from the transverse septum nearly to the os. This case should rather be classed as a rudimentary double vagina than as a transverse septum.

Gervis found in a patient, presenting herself because of a urethral caruncle, that the vagina ended in a double cul-de-sac, and in the left side there was a small opening leading into the upper portion of the vagina. Menstruation had begun at fifteen years of age, and had continued ever since without trouble. There had been a slight leucorrhea, which promptly disappeared when the septum was removed. Carter also reported a thick septum through which the menstrual blood escaped by a very small opening, the process taking a very long time. This was operated upon with relief.

Doléris's case was that of a patient who came to the hospital in the course of a miscarriage at the sixth month. She had had regular catamenia since her seventeenth year. Examination under chloroform showed a very short vagina ending in a cul-de-sac which communicated with the upper part of the vagina by an opening which would admit of only the passage of a filiform sound. The patient returned to her home, but came back in a few days with the membrane bulging through the vaginal opening and the opening enlarged to one-half to three-quarters of an inch in diameter under the softening and dilating influences of the labor. The membrane was torn, and the fetus delivered in a few minutes.

In 1889 Cullingworth reported two cases in the *Lancet*. In the first, a widow, age thirty, presented herself for an offensive vaginal discharge. Catamenia

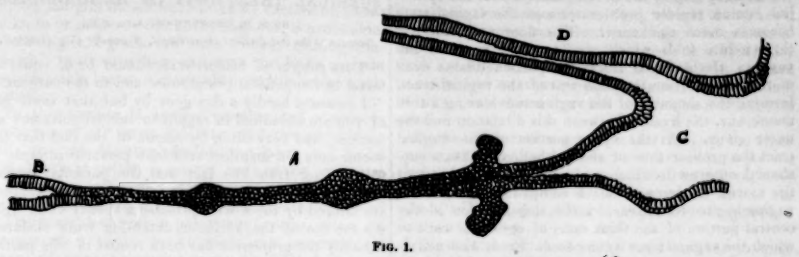



Fig. 1.

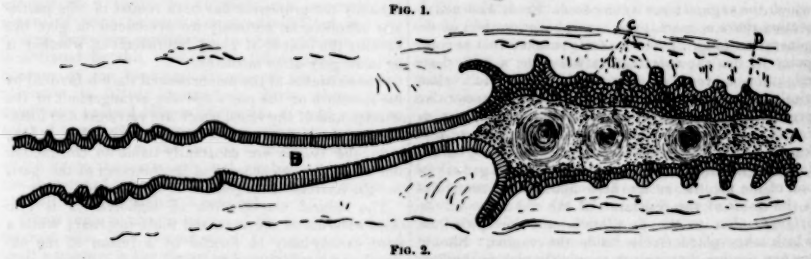



Fig. 2.

had come on at fourteen, and had been regular though preceded by pain. In the intervals there had been an occasional brown discharge, which at last became constant and offensive. The vagina was one and three-quarters inches in depth; and in the anterior part, a little to the right of the median line, was an aperture large enough to admit of the passage of a uterine sound. The opening was stretched and then torn to the vaginal wall, and after a few days' packing with gauze and wearing a glass speculum, the patient was discharged. Two months later there was no erosion, and except for a little ridge to mark the spot, the vaginal walls were smooth and normal. The second case was a woman, age twenty-three, who was admitted in labor because no os could be made out. Catamenia had appeared at twelve years of age, and had been regular until after marriage. There was habitually a slight discharge between the periods, but without ill odor. A membrane was found about midway in the vagina, and a little posteriorly to the centre was a nodule, and at the side of the nodule an opening which with difficulty admitted the tip of the forefinger. The opening was dilated and the septum torn, and the labor was finished without any further incidents. When discharged there was only a slight ridge to be felt along the anterior wall.

Heyder gives a very full report of a case seen by him. The patient was six months pregnant, and came to the hospital because of hemorrhage following a fall. There was found, one-half to three-quarters of an inch above the hymen, a septum through which there was only a pin-hole opening, situated near the symphysis and about one-twelfth of an inch in diameter. Menstruation had begun at fifteen, and continued quite normally and regularly. The membrane was split in the middle line and removed close to the vaginal wall with scissors. The vaginal mucous membrane was then united with fine stitches. The septum at its base was about one-twelfth of an inch in thickness. The membrane showed no sign of scar-tissue on most careful examination. When full term was reached, the woman was delivered in a perfectly normal manner.

Dr. J. R. Chadwick has reported a case operated on by him, in which he gives a diagram of the pelvis, showing the condition.

In the course of the history of the above-mentioned cases, there is only one in which there has been any report of the histological structure of the tissue of the septum, and in this there was no inflammatory scar-tissue found. In almost all of the cases there has been no history of instrumentation or inflammation and we must conclude that it is most probable that this rare condition is usually congenital. No attempt has been made so far as I know, to explain this phenomenon which presents many difficulties, and the theory which seems to me most probable, may not be supported by subsequent investigations.

The Wolffian ducts which form the genital tract fuse together during the third month of fetal life. The process begins about two-thirds of the way down the genital tract, and extends both upwards and downwards. It may be that the septum is the result of the fusion beginning in two places, and thus a band is left separating the upper and the lower portion of the vagina. Boulton's case is probably an example of such an incomplete fusion of the Wolffian ducts; but the majority of cases probably are due to the persistence of conditions belonging to a later stage of fetal development.

The fusion of the Wolffian ducts is completed by the end of the third month; and, in the course of the fourth month, the genital tract which has been already by a sharp bend differentiated into an upper (or uterine) and a lower (or vaginal) portion, becomes flattened, and the epithelial surfaces meet and grow together, forming an epithelial lamina (Fig. 1) which, near the opening into the uro-genital sinus, is thickened, presenting on section a T-shaped appearance.

The next step in the development is that the epithelial lamina rapidly proliferates and the vaginal tract becomes much thickened. The floor and roof are thrown into folds which persist as the rugæ of the vagina; the external thickened portion dilates even more in proportion than the rest of the vaginal tract, forming the ampulla of the vagina and leaving a thin membrane, the hymen, between this dilatation and the outer sinus. At the upper portion of the vaginal tract the proliferation of the epithelium makes a cup-shaped outgrowth which embraces the lower end of the uterus. During the sixth month the lumen of the vagina begins to appear by the degeneration of the central portion of the thick mass of epithelial cells of which the vaginal tract is composed. From Tourneux's section there appears to be several distinct foci of degeneration (Fig. 2), and it seems possible that at some point in the vaginal tract between these foci there might be a group of cells which could retain their vitality and not be involved in the degenerative process and thus a transverse septum of the vagina result. That this condition is different from that known as an imperforate hymen may be seen from the fact that the hymen does not arise from a growth of one of the papillæ, as has been affirmed by some, but is the result of the resistance of the end warts of the original tubes to the proliferation of the epithelium which takes place freely inside the vagina. Should for any reason the vaginal opening which at the fifth to sixth month is a mere fistulous tract with a diameter of only one-tenth to fifteen-hundredths of a millimetre (0.1 to 0.157 mm.) remain closed or fail to connect with the sinus, the condition of imperforate hymen results.

The fact that such a condition as transverse septum may exist and not be discovered until the woman is in labor, makes this anomaly of practical value to the obstetrician, for although the septum seems to offer a decided hindrance to labor, yet when it is recognized, simple division of the membrane is sufficient in most cases to allow a speedy delivery and effect a permanent cure.

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TEXAS STATE MEDICAL SOCIETY. — At the annual meeting of this Society, held at Dallas on April 23d to 27th, Dr. P. C. Coleman, of Colorado, was elected President, Drs. Wagley, Kennedy and Bass, Vice-Presidents, and Dr. H. A West, of Galveston, Secretary. The next meeting will be held at Fort Worth on the fourth Tuesday in April, 1896.

## SURGICAL TREATMENT OF HEMORRHOIDS.[1]

BY E. H. TROWBRIDGE, A.B., M.D.,
*Surgeon to the Out-Patient Department, Worcester City Hospital.*

THIS subject of hemorrhoids should be of equal interest to the general practitioner and to the surgeon.

I presume hardly a day goes by but that some one of you are consulted in regard to this troublesome affection; and very often by reason of the fact that the doctor does not manifest sufficient personal interest in the case, or from the fact that the patients become tired of further dabbling with palliative measures, they are allured by those who promise a speedy cure, without the use of the knife, or detention from business. Possibly the profession has been remiss in this particular affection, for certainly we are bound to give our patients the benefit of every improvement, whether it be in surgery or in medicine.

The existence of the hemorrhoidal state is favored by the structure of the parts and the arrangement of the arteries, and of the veins, which are valveless and tortuous; in this locality more than in any other in the body, the vessels are constantly liable to contraction and relaxation, on account of the function of the part, and the intricate arrangement of the muscles.

The natural classification of hemorrhoids is into those external to the anus, and those internal; while a third variety may be formed by a fusion of the external and internal masses.

The external pile may consist of a tag of skin which, when irritated, becomes inflamed and hypertrophied, or it may be a bloody tumor caused by the rupture of a vessel; the clot becoming organized and undergoing a fibrous change, and the submucous and the subcutaneous tissue becoming hypertrophied, there results a large mass at the anal orifice.

The internal pile consists of tortuous and dilated veins and arteries, attended with more or less exudate in the submucous and subcutaneous tissue. These masses are soft and spongy; may be large or small; may be easily irritated, inflamed and ulcerated. The large pile generally protrudes at stool while the small pile is not so likely to prolapse. The blood-vessels being easily distended and the mucous membrane being thin, rupture readily takes place and hemorrhage results. It is this hemorrhage which constitutes the dangerous element of the internal pile; at each stool the patient may lose a large amount of blood, which in time renders him anemic and debilitated.

The special feature of the external pile is pain, which is aggravated after stool and when the pile is inflamed; the pain is intensified, by the patient sitting, standing or walking; the recumbent posture is the only one which offers relief.

The diagnosis of the hemorrhoidal condition can be readily made by ocular inspection; but in every case, never fail to examine digitally and that by the little finger; this is long enough to reach to the highest point where the piles are liable to exist, and by reason of its small size it gives the patient less pain than when any of the other digits are used in the examination.

Finding this affection existing in our patient, what method of treatment shall we adopt in order to effect a speedy cure, and that, too, agreeably to the patient and without pain?

[1] Read at the meeting of the Worcester District Society, January 9, 1895.

The treatment of the external hemorrhoid is very simple; the pile should be thoroughly excised by either the knife or scissors; the knife, however, is preferable. In excising it, I grasp the mass without making traction with small volsellum, and with the knife encircle the base; this leaves a clean, even surface which heals readily.

To this surface is applied vaseline, and a powder consisting of six parts iodoform and two parts boric acid; and the dressing of sterilized gauze and boric-acid absorbent cotton is placed next to the parts, and a T bandage adjusted. The wound is attended to daily, and convalescence is brief and uninterrupted.

There are, however, a great many cases where on account of a slight constipation, the hemorrhoidal plexus of veins becomes temporarily dilated, and the dilated parts are constricted by the sphincter, which is irritated by this varicose condition; then, too, on account of the heat and dryness of the rectum, the sphincter is tightly contracted. Now, where these conditions exist, I believe in the use of cold water to relax the sphincter muscle and to relieve the congested vessels, and also in the use of a soothing ointment, which keeps the parts soft and pliable. In this way the threatened permanent condition of hemorrhoids is aborted, and the patient is relieved.

I now come to the discussion of the treatment of the internal pile. The method which I have practised, and shall advocate, is the clamp and cautery.

The other methods, besides the clamp and cautery, are (1) injection of carbolic acid and glycerine, (2) crushing, (3) caustics, (4) ecraseur, (5) excision, (6) strangulation by ligature.

I suppose every person here has been taught that the ligature method was *the* one to use; and being schooled to this method, it is somewhat difficult to abandon it, even for a better one. I am convinced, however, if you once use the clamp and cautery as I believe it should be used, you will never torture your patient with the ligature.

The method which I have used for the last three years is as follows: Patient to be prepared the day previous by saline laxatives, and on the morning of operation the lower bowel is *thoroughly* cleared out by enema. After complete anesthesia the parts are shaved, and irrigated with bichloride solution.

After thoroughly stretching the sphincter, by the thumbs, the pile-bearing area rolls out, presenting to view the various masses. These should be grasped one by one by the volsellum, and raised sufficiently to allow the clamp to be applied.

The ivory plate of the clamp should grasp the pile completely at the anus, at the junction of the skin and mucous membrane, and also in a line *longitudinal* to the bowel, *never obliquely* to that. After the clamp is tightened, then with a pair of curved scissors cut off the mass close to the clamp, and then apply the cautery at a red heat until the base *ceases* to bleed.

After removing all the hemorrhoidal masses in this way, there will be formed at the base of each pile, a cicatrix, longitudinal to the bowel, and these cicatrices will radiate from the anus, like the spokes of a wheel. I emphasize this point of applying the clamp in the longitudinal line of the bowel, for then we have the cauterized bases uniformly arranged in lines about the anus, and after they are healed, there is a uniform appearance of the part and if any contraction should result, it would be uniform.

You can readily see that if the pile is grasped obliquely by the clamp and removed, we will then have a series of irregular cauterized lines, some in one direction, and others in other directions, to which after they are healed, the cicatrices are liable to give an irregular and uneven appearance, and if there should be any contraction, it would be irregular about the anus.

In the most recent work on this subject, the illustration, showing how to grasp the hemorrhoid by the clamp, represents the clamp applied at an angle of about forty-five degrees to the longitudinal line of the bowel, while it should be in the direct longitudinal line of the bowel.

The wound is dressed in the same manner as mentioned after excising the external hemorrhoid, namely, vaseline should be applied, and then a powder, consisting of six parts iodoform and two parts boric acid, dusted on, then sterilized gauze and boric-acid absorbent cotton placed on the parts, and finally a T-bandage; sometimes a gauze tampon is inserted in the rectum, when there is a tendency to ooze.

The great bugbear in the use of the clamp and cautery is hemorrhage; but, I ask, why should hemorrhage be any more of a bugbear here than in any other surgical operation? On this account, there are very few, comparatively, who employ the clamp and cautery, and the operators who still use the old ligature method justify their use of it by saying that there is no danger of hemorrhage; well, there certainly ought not to be, after tying off as tightly as possible these masses. But there are other means besides the ligature to control hemorrhage.

The clamp serves the purpose of a hemostatic, as it grasps the pile; the blades are tightly pressed together, and held there by the thumb-screw, and firm pressure is thus maintained during the time it takes to cut off the pile and use the cautery. I have never experienced any hemorrhage in any of the cases I have operated upon.

I desire to present briefly, a few cases from many operated upon, illustrating the superiority of this method over all the others. These cases are not selected, but taken at random, from my notes.

Case I. Dr. P., dentist, age thirty-nine. Operated upon in October, 1893. Dr. P. had suffered for a long time with internal hemorrhoids; they had especially troubled him while standing, and thus incapacitated him from attending to his patients. Being unable to endure the misery any longer, he was referred to me by Dr. Fay, for operation.

After stretching the sphincter, a rosette of piles presented themselves. The operation was done at the patient's residence, and in a room heated by a coal stove. The operating-table was placed near by the stove, and I here used a common poker to cauterize the bases of the hemorrhoidal masses. The wound was dressed with vaseline and the iodoform-boric-acid powder. The patient made uninterrupted and rapid recovery; there was no pain; no retention of urine; no severe soreness; no long detention in bed.

Case II. Mrs. B., wife of a physician, age fifty-two. Operated upon in May, 1893, with clamp and cautery. This patient being a large, fleshy person, suffered exceedingly from hemorrhoids of the muco-cutaneous variety. Extreme irritation of the rectum, pain, soreness and tenesmus were the principal symptoms, and these symptoms she had endured a long time, though alleviated by palliative measures.

Operative treatment had been frequently advocated, but

being fleshy, she feared the ether. The operation was performed, as before stated, and the patient kept in bed about two weeks. The anal surface was dressed with the iodoform-boric-acid powder and vaseline.

This patient told me the other day, that she was in perfect health, and had never experienced any symptoms which would remind her of the fact that she had suffered from piles.

CASE III. Mrs. K., age twenty-two. Operated upon on December 30, 1893. A mass of hemorrhoids presented themselves, after stretching the sphincter. These had given her trouble for a long time.

They were removed by the clamp and cautery. In this case I used a hot poker for cauterizing; the parts were dressed with vaseline and the iodoform-boric-acid powder. Patient made uninterrupted recovery, and was free from any pain or discomfort during convalescence; there has been no vestige of the former trouble.

CASE IV. Mrs. H., age thirty-four. Operated upon Friday, July 13, 1894. Mrs. H. had suffered from internal hemorrhoids since graduating from school, and by reason of the loss of blood at the stools, had become very anemic. After examining the patient, an operation was advised, and she readily consented to have it done at the earliest opportunity.

The hemorrhoidal masses were large, and entirely encircled the anus. These were removed by the clamp and cautery, and parts dressed as in the other cases.

Mrs. H. was seen on the 14th, 15th, 17th and 20th; and on the 23d, a week from the following Monday after the operation, she went to Fitchburg. From the time of recovery from the ether, there was not the slightest pain or discomfort; no trouble in micturition. On the fourth day following, the bowels were gently relieved by a saline laxative. A few weeks ago, this patient came to my office, and I asked her in regard to her present state of health. She replied that she was in perfect health; she had gained in flesh, and the anemic condition had disappeared.

CASE V. Mr. W., from North Brookfield, age fifty. Operated upon in October, 1894 (Friday, 12th). This patient had suffered more or less during the past twenty years; for the past eighteen months had been unable to do any work. First saw the patient on the 11th of October. At that time a large mass of muco-cutaneous, inflamed and irritated hemorrhoids presented; they were very painful when sitting and in walking. These were removed by the usual method with clamp and cautery. Anal surface dressed with the iodoform-boric-acid powder and vaseline.

Saline laxative administered on fourth day, and bowels moved without pain. Patient was free from pain during all the time after the operation; no retention of urine; no soreness.

Mr. W. went home on Saturday the 20th, just a week from the day following the operation.

CASE VI. Mrs. D., widow, age thirty-two. Operated upon July, 1893. This case I operated upon for Dr. Fay, and I cite this in contrast to the others, as here I used the ligature on account of some trouble with the cautery. This patient had become anemic, on account of the hemorrhage attending the internal piles, and was forced to undergo the operation.

The hemorrhoids were ligated, and the wound treated in the usual way. I expressed to the attending physician, that I regretted using the ligature, as I was sure the patient would experience the torture and misery which usually follows.

In this case, patient was confined to bed for over two weeks; the ligatures did not come away until about the eleventh day; on recovery from the ether, the pain was excruciating, and hypodermics of morphia were required, more or less, for a week following the operation, also inability to pass the urine gave the patient additional pain, and required the use of the catheter. When the bowels were first evacuated, after the operation, the patient suffered exceedingly, as the ligated masses acted as an obstruction, and when the sphincter ani dilated and contracted, these ligated stumps were subjected to pressure and irritation.

I resolved that I would never operate again with the ligature.

It is hardly necessary for me to cite numerous other cases, all bearing the same favorable evidence, in behalf of the clamp and cautery.

As compared with the other methods, what shall we say?

The carbolic injection is dangerous and inefficient, and is liable to cause peritonitis, embolism and pyemia; and if a cure is effected, it takes a long time, and causes the patient much suffering.

The crushing method I have not tried; but it is liable to cause sepsis on account of the jagged base of the crushed pile and sloughing is liable to result.

The use of caustics is to be avoided for the same reason: danger of sepsis.

Of all the methods hemorrhage is most liable to occur in the use of the ecraseur.

The ligature, while it is the simplest of the radical cures for the internal hemorrhoid, causes the patient severe pain from the time of operation until the ligatures come away; retention of urine, from a few days to a week or more, is the almost universal rule; difficult and painful defecation; confinement in bed from twelve to fourteen days.

If there is any one present who has undergone the ligature operation, I think they can sympathize with the speaker, in saying that they are not very desirous to repeat the experience of the first ten days following the operation.

The Whitehead method, that is, excising that portion of the mucous membrane which contains the hemorrhoidal plexus is not all that was promised for it. It should be employed only in selected cases. Full and complete paralysis of the sphincter muscle is absolutely necessary. The operation is difficult, tedious and bloody; and if non-union occurs, there is retraction of the mucous membrane, and a large circular granulating area left, which may be the source of sepsis. Retention of urine is also liable to exist for a week or ten days.

In the case of the clamp and cautery, none of the above mentioned consequences or complications occur.

The operation can be done (1) expeditiously, and with little loss of blood; (2) the cauterized base of the pile is rendered aseptic by the cautery; (3) there is no pain following the operation; (4) retention of urine is extremely rare (I have never seen a case where the patient suffered from retention); (5) convalescence is brief and uninterrupted — confinement in bed from three to seven days is sufficient.

Such in brief are the advantages in operating with the clamp and cautery.

## Clinical Department.

### EARLY CURETTING IN PUERPERAL SEPSIS.[1]

BY HORACE E. MARION, M.D.

MRS. ——, twenty-eight years of age, fell in labor on the morning of the 25th day of January, 1895. Second pregnancy and second child. Her first con-

[1] Read, by invitation, before the Obstetrical Society of Boston, March 9, 1895.

finement was without incident. Labor, still in the first stage, was well underway when I first saw her. Before making an examination, the toilet, if I may use the word, of the vagina and pudenda, as well as my own hands, was carefully attended to.

Presentation O. L. A. The labor was perfectly natural, and terminated within four hours. No examinations were made after the first, except to protect the perineum during the passage of the head. There was no tearing of the soft parts. The patient was not in the least exhausted. The baby was a girl and weighed seven pounds. The placenta, apparently intact, followed in about ten minutes. Sterilized napkins were used.

For five days the temperature and pulse, taken by myself, were absolutely normal. At my visit on the sixth day patient complained of having passed a sleepless night, with pain in the head and back of the neck. Temperature and pulse 100. Very slight odor to the lochia, and slight tenderness to pressure upon the uterus, which seemed about as large as it was twenty-four hours after labor. There was nothing else, so far as I could learn after careful examination, to account for the elevation of temperature.

On the following day, the seventh, the temperature was a little higher. Pulse about as the day before. Bowels had been moved freely. Condition of the uterus about the same, with no more odor to the lochia. Headache not relieved. On the morning of the eighth day the temperature was 102° and pulse 110. Headache and insomnia. Flow of milk very much diminished. Lochia about the same in character as the day before. Vaginal douche had been used.

Bimanual examination showed the uterus larger, with flabby walls, os patulous. Specular examinations revealed no lesions of vaginal walls or of the cervix. With the usual aseptic precautions the cervix was seized with double hook and the interior of the uterus was carefully and thoroughly curetted with large sharp curette, resulting in the removal of a piece of tissue, presumably placental, from two to three inches square. No microscopic examination was made and no cultures were taken; it was slightly offensive. The uterine cavity was left packed with iodoform gauze, which was removed on the following day. The temperature fell at once, as may be seen by the chart, and recovery was rapid, the uterus promptly returning to a normal condition. The internal medication was two grains of quinine three times daily and Dover's powder as necessary.

I have selected this case for no special reason except that it is the last one in a limited obstetrical practice that required any interference. I have purposely given a detailed account of it because it seemed so very simple. So simple, indeed, that, had not the indications been met as they were, it might have eventuated in a very decided and possibly fatal case of puerperal septicemia. I regret that no cultural test was made.

It is from this Society, and such as this, that the science of obstetrics in general practice must be advanced; and I cannot too strongly emphasize the indications for and the method of curetting the puerperal uterus laid down by Dr. Edward Reynolds in his excellent paper read before the Massachusetts Medical Society at its last annual meeting.

The point I wish to bring out in this case is the timely use of the curette, to ascertain if there is within the uterus a possible source of sepsis. The interior of the uterus was *carefully* gone over with a sharp curette, as we believe, without any injury to the endometrium. As the tissue removed, be it placental or otherwise, was not in an advanced stage of necrosis, we were content, without deeper curetting, to leave the uterus packed with iodoform gauze. Of course, had it been evident that the deeper structures were involved, I should have removed everything down to firm uterine tissue, as Dr. Reynolds insists upon.

I have never used the cervical speculum in these cases. The canal is so large and patulous there can be but little danger of retained douche; besides where gauze is used for packing, the cavity of the uterus is readily drained. Moreover, in severe cases, the interior of the uterus, down to and about the os, should be thoroughly curetted.

The country obstetrician, especially in the past, has labored under the great disadvantage of being either without a nurse at all, or what is quite as bad, having a nurse with a limited personal experience and absolutely without training, always ready to account for any symptom that may arise and to apply a remedy therefor.

Thanks to our many and excellent training schools, this condition of things will soon pass away.

With a nurse faithful to her training and a physician who has the courage of his convictions, sepsis in midwifery will be rare indeed.

## CASE OF SEPTUM OF VAGINA.

BY S. W. TORREY, M.D., BEVERLY, MASS.

Patient, single, about twenty years old, applied to me in March, 1892, for relief from suffering from dysmenorrhea and general pelvic discomfort. Examination showed intense hyperesthesia of entire vagina up to within three-quarters of an inch of the cervix, where the finger struck against a tight transverse septum, cord-like in its tenseness, and so sensitive that the slightest rubbing of the finger over it caused the patient to cry out with pain. The surface of the cervix, as far as it could be examined visually beyond the septum, was red and rough from friction upon the band.

After two or three weeks of treatment by ichthyol on cotton between the cervix and the septum, with improvement in the inflammatory condition but none in the neuralgic, the patient entered my hospital; and her subsequent history, from my case-book, is as follows:

April 21st, patient fully etherized, as slightest touch to septum caused pain under partial anesthesia. Even when under deep anesthesia stretching the septum evidently gave pain, as patient writhed with discomfort. When vagina was distended by Sims's speculum it was seen that the probable cause of the local pain and general neurasthenia was the chafing of the cervix upon the tightly-drawn, cord-like septum. The septum was divided in two places, close to wall of the vagina; no ligatures required. Iodoform gauze to cervix, and large glass vaginal plug inserted.

April 23d. Result of operation entirely successful; pain relieved, and Sims's speculum applied without giving discomfort. Boric-acid to cervix; tampon to upper part of vagina.

Patient discharged from hospital April 25th. My

notes show that local treatment for the cervicitis extended over two months after dividing the septum, and that persistence in the use of ichthyol was followed by cure. There was no stenosis of vagina as a result of the division of the septum. Careful questioning of the patient revealed no traumatic cause for the abnormal condition of the vagina, and I believe the septum to have been congenital.

## Medical Progress.

### RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

(Continued from No. 20, p. 490.)

#### RESECTIONS OF THE ILEO-CECAL COIL FOR STRICTURE AND FISTULA.

W. S. Magill, of Chicago, has contributed a paper on the above subject to the *Annals of Surgery*, December, 1894, with a review of 104 cases. He says that excision of the cecum should be attempted in every case of primary neoplastic tumor where extensive infiltration of the vicinity or ganglia is not present to forbid the intervention.

Tuberculosis or inflammation localized at the ileo-cecal coil should determine its resection in every case in which the immediate operation is possible without surpassing the patient's power of resistance, provided that other tubercular localizations be not so extensive as to render the advantage of this radical operation only temporary.

Examination of reports of tubercular cases leads to the hypothesis that operated appendicitis with unsatisfactory results — persisting fistula, repetition of accidents, induration, etc. — is amenable to resection, and that primary excision of the ileo-cecal coil would be less dangerous than and preferable to excision for fistula. A careful diagnosis should therefore be made to determine this point before operating.

Invagination in the region of the cecum is frequently complicated with cancerous disease; and in any case of resection the excision should be extensive to assure the result.

The longer the time that separates the actual condition of the parts from a state of acute inflammation, the better are the results of the operation assured.

Fistula of the ileo-cecal coil can safely be treated by resection, if no extensive suppuration has invaded, nor been allowed to enter, the iliac fossa.

An irreducible cecum may be excised with safety.

After resection, in all cases, the continuity of the digestive tract must be immediately established and secured against leakage. The only exception might be made for acute obstruction.

The continuity has been sought by uniting the intestine, with sutures, with a lateral anastomosis with absorbable plates, with a terminal or lateral implantation of the ileon into colon, best effected with the anastomotic button.

The greater part of the mortality of resection of the ileo-cecal coil is directly imputable to the insufficiency of the sutured intestine. Many of the recoveries show the leakage of intestinal contents through the line of sutures, by the formation and persistence of stercoral fistulæ.

The length of time required for operation is maximum for sutures.

With the exception of a fault of too little excision, not a reproach is found for resection followed by ileo-colostomy with absorbable plates or with the anastomotic button.

These last two methods have time-saving advantages.

These statements correspond with the results of the plates and buttons which Magill has demonstrated in his article.

The conclusion is, therefore, justifiable that sutures are not to be used for establishing the continuity of the digestive tract after resection of the ileo-cecal coil.

He then follows with an account of the preparation of the patient and the operation in detail — the closure of the abdomen and the post-operatory care. Bibliography is appended. The article is of value for reference.

#### INCISION FOR APPENDICITIS.

Charles McBurney,[12] has found that following appendicitis, in a certain number of cases, ventral herniæ occur. He has advised an operation which is of value. It is as follows: The skin incision should be made. The section of the external oblique muscle and aponeurosis should correspond, great care being taken to separate these tissues in the same line, not cutting any fibres across. This is easily accomplished. When the edges of the wound in the external oblique are now strongly pulled apart with retractors, a considerable expanse of the internal oblique muscle is seen, the fibres of which cross somewhat obliquely the opening formed by these retractors. With a blunt instrument, such as the handle of a knife or closed scissors, the fibres of the internal oblique and transversalis muscles can now be separated, without cutting more than an occasional fibre, in a line parallel with their course, that is, nearly at right angles to the incision in the external oblique aponeurosis. Blunt retractors should now be introduced into this in turn and the edges separated. The transversalis fascia is thus well exposed, and is then divided in the same line. Last of all the section of the peritoneum is made.

Two sets of retractors must be in use, one holding open the superficial wound from side to side, the other separating the edges of the deeper wound from above downward. A considerable opening is thus formed, through which, in suitable cases, the caput coli can be easily handled, and the appendix removed. The appendix having been taken away, the wound in the peritoneum, which is transverse, is then closed by suture. The similar wound in the fascia transversalis is also sutured. The fibres of the internal oblique and transversalis muscles fall together as soon as the retractors are withdrawn, and with a couple of fine catgut stitches the closure can be made more complete. The wound in the external oblique aponeurosis is sewed with catgut from end to end. When the operation is completed it will be seen that the gridiron-like arrangement of the muscular and tendinous fibres, to which the abdominal wall largely owes its strength, is restored almost as completely as if no operation had been done. In performing this operation he has noticed several advantages.

In the first place, muscular and tendinous fibres are

[12] Annals of Surgery, July, 1894, p. 38.

separated, but not divided, so that muscular action cannot tend to draw the edges of the wound apart, but rather to actively approximate them. Excepting during the incision of the skin, almost no bleeding occurs. The fascia transversalis not being drawn away by the retraction of the deepest layer of muscular fibres, this fascia is easily completely sutured, and thus greater strength of repair is assured. No muscular fibres or larger nerves having been divided, pain after operation is almost absent. The operation requires rather more time than the usual one, and a larger number of assistants is needed, for four retractors are in use during part of the time. The opening into the peritoneal cavity is not large, but may be made larger if necessary, by continuing the separation of the fibres of the internal oblique and transversalis, and dividing the conjoined aponeurosis in the same line with scissors. In the opposite direction the separation of muscular fibres may be carried as far as the crest of the ilium.

### TREATMENT OF ARTIFICIAL ANUS.

Chaput[13] records 35 cases of artificial anus and stercoral fistulæ which he has treated. After an exhaustive survey of these cases he has formulated the following conclusions concerning the treatment of this class of cases: He says that artificial anus can be treated by four different methods:

(1) By the application of enterotomy, followed by obliteration of the fistula. (*a*) Enterotomy is indicated when the cases are uncomplicated and the aperture is easily accessible, together with a thin and long partition. When the spur is long and thin it is advisable to adopt Richelot's method, that is, section between two pairs of forceps and immediate suture. If, however, the spur is long and somewhat thickened, it is better to make the suture between two long pairs of forceps, which are allowed to remain in position. Enterotomy is contraindicated when the spur is very thick or inaccessible, or when the aperture is closed by the mechanism of angular wounds. (*b*) After destruction of the spur, the stercoral fistula is closed. Small fistulæ are closed by lateral enterorrhaphy, during which operation the margins of the fistula are freely separated from their surroundings, and then united with two tiers of sutures, the peritoneum being opened or not according to the requirements of each individual case. In the case of large fistulæ, lateral enterorrhaphy may be employed, but the peritoneum should not be opened.

(2) Resection is as a general rule contraindicated; but when in the course of a lateral enterorrhaphy the intestine is easily friable and is largely lacerated, it is necessary to resect the two ends and reunite them by appropriate sutures.

(3) When enterotomy is for some reason contraindicated, it is sometimes advisable to employ longitudinal enterorrhaphy without resection. This operation is done by making a circular incision in the skin around the artificial anus, and opening the peritoneal cavity. The two ends are drawn out, a longitudinal slit is made in each, and then the margins of the slits of the same side are sewed together with sutures. This operation is indicated when in the course of a lateral enterorrhaphy considerable constriction is met with just below the lower end. When the intestine is very friable it is contraindicated.

[13] Archiv. Gen. de Med., September and October; British Medical Journal, December 15, 1894, p. 94.

(4) Enteroanastomosis, followed by ligature of the two ends between the point of anastomosis and the stercoral aperture, is a simple, easy and benign operation. It is indicated when the intestine is very friable at the seat of the artificial anus, or when there is a considerable constriction of the bowel in the neighborhood of the external aperture, and also when the inferior end is obliterated at the level of the artificial anus.

### AMPUTATION AT THE HIP JOINT.

F. T. Paul[14] reports several amputations at the hip-joint. The method he uses for controlling the hemorrhage is very simple. He states that the want of a good method has been severely felt, and is evidenced by the number of suggestions which have been made with a view to overcome this difficulty; and it is only because no method is so satisfactory as to be universally adopted that he mentions the simple plan of fixing an Esmarch's tourniquet adopted in his cases. It has proved reliable and effectual, and in no case was there any more troublesome bleeding than in an ordinary amputation through the thigh. The operation employed was a large anterior flap cut from without inwards, disarticulation, and a shorter posterior flap cut from within outwards. The femoral artery was always tied as soon as the anterior flap had been cut, from fear of accidents; and he thinks this should be the rule, as half a minute's free bleeding from the femoral artery would probably be fatal in one of these exhausted children. The mode of fixing the elastic tourniquet is almost childishly simple. Two pieces of calico bandage are placed in position, one crossing the opposite shoulder and the other the opposite hip. The tourniquet is applied over these pieces of bandage round the innominate bone, being hitched above the crest of the ilium in front and the tuberosity of the ischium behind. Then the free ends of the bandages are carried back to the shoulder and hip and tied sufficiently tight to prevent slipping when the limb is removed. This takes off some of the elastic strain over the external iliac artery, so a roller bandage is pushed under the tourniquet at this spot to increase the pressure on the vessel. The plan described is certainly less severe than Wyeth's method with steel mattress needles, and is equally secure; at any rate, he has used it in all his cases, and he feels that he can recommend it with confidence, for he attributes the success obtained almost entirely to the absence of any appreciable loss of blood, due to the satisfactory manner in which the tourniquet controlled the vessels.

*(To be continued.)*

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting March 9, 1895, the President, DR. JAMES R. CHADWICK, in the chair.

DR. C. M. GREEN read a paper on

### PELVIC INFLAMMATIONS.[1]

of which the following is an abstract:

Under the general heading of pelvic inflammation

[1] This paper will appear in the Sixth Series of the Boston City Hospital Medical and Surgical Reports.

[14] Lancet, January 26, 1895, p. 214.

are included the various forms of salpingitis, ovarian abscess, pelvic abscess, and those conditions variously designated under the terms of perimetritis, parametritis, pelvic cellulitis, and pelvic peritonitis: vaginitis and uncomplicated endometritis are excluded. This classification is adopted in accordance with the present views of pelvic pathology and etiology. It is now generally accepted that the various stages of pelvic inflammation are but differing degrees of one and the same morbid process, of which the cause is to be found, in the vast majority of cases, in some form of septic or specific infection. Whether the pathogenic micrococcus effects an entrance by impure sexual contact, by septic instruments or examining fingers, a flame is lighted which may be limited to the Fallopian tube, or which may extend through either the fimbriated extremity or the tube wall, and sweep through the pelvis, involving the ovary, the pelvic peritoneum and cellular tissue, resulting, perhaps, in abscess formation which may destroy not only the uterine appendages, but the life of the patient as well.

The degree to which any pelvic inflammation may attain of course depends chiefly on the nature and the virulence of the infecting virus, and is also influenced, to some extent at least, by the environment of the patient, and by the promptness and intelligence of the treatment.

Most cases of pelvic inflammation can be classified under one of the following five heads:

(1) Salpingitis.

(2) Tubo-ovarian inflammation.

(3) Pelvic inflammation, with exudation preventing accurate diagnosis.

(4) Pelvic abscess.

(5) Peritonitis with retro-displacement of the uterus.

[The clinical course of these forms of inflammation was then considered, and methods of treatment outlined.]

DR. J. C. WARREN said that in deciding between laparotomy and opening the vagina in pelvic abscess, he has found by experience that it is better to perform laparotomy than to open the vagina unless the abscess appears to be making a determined effort to get out through the vagina.

DR. G. HAVEN preferred the abdominal route, having used the vaginal only twice. Laparotomy is more exact; you know and see just what you are about, and the results are more speedy.

DR. EDW. REYNOLDS would disagree with the last speaker, for he believed that where the abscess could be opened by the vagina there was far less shock and danger. The ultimate results, too, are very good. He is surprised to find how adhesive conditions of the pelvic organs melt away. When, however, the abscess is confined to the tubes, the abdominal route is the best.

DR. J. G. BLAKE said that for twenty-five years he has been opening these abscesses by the vaginal route, and has been very successful, not exposing the patients to the danger of laparotomy.

DR. EDW. REYNOLDS believed it was important to distinguish the two classes of abscess. The encysted abscesses should be opened vaginally, but those of the tubes should be removed by laparotomy.

DR. M. H. RICHARDSON said there was great danger in draining a large abscess through the abdomen, from streptococcus infection. He had seen many of these cases, and he believed it was dangerous to apply one rule to them. He would generally operate through the vagina, unless the case was such that it could plainly be reached from above.

DR. J. C. WARREN said that there is now with improved methods of technique much less dread of laparotomy for pus-tubes than formerly. In large specimens he takes the precaution to aspirate the pus first. He thought there was more chance of satisfactory results by laparotomy than by the vaginal method.

DR. GREEN said in closing the discussion, that he believed there was no real difference of opinion, among the best surgeons, as to the treatment of pelvic abscess. When the tumor lies low in the pelvis, with bulging of the pus sac into the rectum and vagina, evacuation of the pus from below, with irrigation and drainage, is attended with good results. But when the tumor is high in the pelvis and does not point on its inferior border, it is certainly not good surgery to approach the pus from below. Such cases are best treated by abdominal section, with a view not only to evacuating pus, but to removing diseased, and perhaps disorganized, appendages.

DR. HORACE E. MARION read, by invitation, on

### EARLY CURETTING IN PUERPERAL SEPSIS.[1]

DR. J. G. BLAKE said he had lately seen two cases of bad puerperal sepsis at the North End. One he curetted; the other he sent to the City Hospital. Both recovered. He believed that many die without appropriate treatment, and that something should be done to protect the community against ignorant and dirty midwives.

DR. E. REYNOLDS said that Dr. Marion's case illustrates the point he had taken in a former paper, that if the curette is used early, life is saved and, moreover, the pelvic organs are left intact. Whereas, if the operation is delayed, although life may be saved the patient is often left a gynecological invalid. If in doubt whether the case is sepsis or not, use the curette. Any risk that may attend its use is infinitesimal compared with the danger from neglect in not using it. He has frequently been called to hopeless cases of sepsis where an early use of the curette would have saved life.

DR. GEORGE HAVEN wished merely to emphasize the remarks of the last speaker, and mentioned a case where he had used peroxide of hydrogen to help in cleaning the uterus.

DR. M. H. RICHARDSON asked about the danger of air embolism from peroxide of hydrogen.

DR. G. HAVEN is not afraid on this account, and thinks there is no danger. In Cæsarean section, air enters freely into the uterus, but air embolism never results.

DR. M. H. RICHARDSON said air embolism is one of those rare accidents that comes when least expected. He himself should be afraid to use the peroxide.

DR. EDW. REYNOLDS said that danger of air embolism exists only before the sinuses are closed by coagula.

DR. C. W. TOWNSEND said he had recently many times in the out-patient department of the Lying-in-Hospital to enforce the rule, "when in doubt consider the case sepsis." There had been a number of cases of grippe among the puerperal patients, but when not sure as to the diagnosis he had treated these cases as sepsis. Grippe untreated generally recovers, which

[1] See page 538 of the Journal.

is not the case with sepsis; while it does no harm to wash out the uterus of a patient with grippe.

Dr. Haven said that Dr. Marion had referred to diagnosis by bacterial examinations. He had not found this of value, for in examinations taken from normal cases with normal temperatures about all the kinds of bacteria had been found except the Klebs-Löffler and the colon bacilli.

Dr. J. C. Warren said that there is danger of perforation in curetting the uterus. He had seen a sound passed through without any force. In this case he did laparotomy and sewed up the hole.

Dr. E. Reynolds said that a sharp curette should be used, with a broad head and a flexible shank that can be bent.

Dr. S. L. Abbot, as one of the oldest members of the Society, said that he believes that septic conditions must have increased of late years. He has never seen a death from puerperal fever, nor even a case of it, and no special precautions were taken in those days. He had had many difficult operative cases without sepsis.

Dr. J. R. Chadwick said that he agreed with the reader as to the use of the curette, but not in every case, for in early cases he has found the inter-uterine douche alone all that was necessary. It is merely a question of getting at it early. He has never lost a case in his own practice, but he has in consultation where he was called too late. He has had such good results from permanganate of potash that he has not changed.

Dr. A. K. Stone reported, by invitation,

CASES OF TRANSVERSE SEPTA OF THE VAGINA.[3]

Dr. S. L. Abbot has seen one case of this anomaly. The septum was half-way up the vagina, with a central opening that admitted only the tip of the fore-finger, the patient was in labor. The septum thinned as the head came down and suddenly gave way by tearing.

Dr. C. M. Green saw a case at the Boston Lying-in Hospital where the septum was close to the cervix. With the finger no opening could be detected. The septum was so thin that it was bored through with the finger and torn.

Dr. J. W. Elliot thought he had seen two or three cases of transverse septa, but it is possible that some of them were cicatricial.

Dr. Haven saw a case a short time ago. The septum was close to the cervix.

Dr. J. R. Chadwick had seen one partial case and one where there was only a pin-hole opening.

A case seen by Dr. S. W. Torrey, who was present at the meeting, was afterwards sent to the Secretary for publication.[4]

A Too Radical Improvement. — The physician was surprised to find the head of the household at the door with a shotgun. "Why, what's the matter?" stammered the doctor. "That there medicine you gave my wife she says is makin' her feel like a new woman. And I want you to understand that no new woman business goes on in this house. First thing I know, she'll be out makin' speeches." — *Toronto Truth.*

[3] See page 533 of the Journal.
[4] See page 539 of the Journal.

## AMERICAN MEDICAL ASSOCIATION.

FORTY-SIXTH ANNUAL MEETING, BALTIMORE, MD., MAY 7–10, 1895.

(Continued from No. 21, p. 525.

SECTION IN MEDICINE.— FIRST DAY.

Dr. E. W. Kellogg, Milwaukee, Chairman; Dr. W. E. Quine, Chicago, Secretary. The former delivered an address on

RECENT ADVANCES IN THE PRACTICE OF MEDICINE.

It is extremely fitting that the Association should meet in a city where nearly half a century ago, its first annual gathering was held. From the field first occupied by the Section on Medicine slice after slice has been taken by the growth of the various specialties, yet the growth of the Section while perhaps not as rapid as those of Surgery and Gynecology is nevertheless distinctly apparent.

At the first annual meeting, the question of anesthesia was still a debated one. It had then been introduced as a relief from pain for all surgical procedures, yet the conservatism of the day gave it anything but a cordial reception. The anti-malarial effect of quinine was barely recognized, while its mode of action was of course unknown. The salicylates and antipyretic drugs were then unheard of as therapeutic resources. In 1877 came the promulgation of the germ theory of disease which was very seductive, but which led at first to the drawing of unwarrantable deductions. Of our more recent advances, some are more apparent than real. Our people are prone to follow fads, and the medical profession is no exception to the general rule. The temple of medicine has been building but slowly; and some of the stones set there in the first flush of zeal from some pretended new discovery have had to be removed in the calmer light of further investigation. Antisepsis has reached its topmost height, and already the crest of its wave is scattering into foam. We are learning that it is better to avoid the causes of disease than to remove its effects, and that good hygiene is preferable to therapeutics. The last year has witnessed the advent of the serum-therapy. This is either a tremendous farce, or else the greatest therapeutic advance since the days of Jenner. Noteworthy results have already been reached with diphtheria. Our serum must be pure, our diagnosis based upon bacteriological findings, rigid antisepsis followed, and the remedy be used early. If one-half of its claims be true, it is well worthy of a further trial. The claims of its advocates, however, are met by the denials of its opponents. Its uselessness in secondary infections is already manifest. Our experience with tuberculin and the fact that diphtheria so often recovers under any treatment should lead us to be cautious.

A hopeful sign of the times is the reaction against the use of heart-depressing antipyretics except under very extraordinary circumstances.

Our knowledge of the contagiousness of tuberculosis and the knowledge that travellers go up and down the land scattering bacilli broadcast, should lead the profession to dispel the ignorance of the laity on this most important topic and to their urging the enactment of proper legislation.

Dr. John C. Hollister of Chicago, read a paper on

NEW DEPARTURES IN THERAPEUTICS,

He said that to judge of the medical theories of any age we have only to examine its therapeutic system. Medicine has long been compelled to act on the defensive, because we have been so ignorant as to etiology and have been compelled to employ our remedies empirically; but owing to the revelations of the microscope and laboratory, therapeusis has now become aggressive and we are on the verge of an era from which will date the renaissance of medicine.

Twenty years ago the two great theories of pathology were the cellular and humoral. Hence arose two systems of therapeutics, towards which in these last years the tide was again strongly set. We now recognize an organic therapy or the therapy of substitution and a sero-therapy. The former is based upon the view that all vital activity has a cellular genesis, and that an equilibrium of all these activities means perfect health. An impairment of cell integrity means impaired function. Remedial agents are valuable as they affect cell-vitality, and cells themselves have a defensive *vis vitæ*.

Cell-stimulation leads to the production of proteids, albumins and nucleins which oppose toxines. Slight irritation increases cell-antitoxicity. The white cells under such circumstances, do not act as phagocytes, but they throw themselves around invading bacilli, and the latter are thereby subjected to greater antitoxic influence.

Cells, too, seem to have the power of selecting special pabulum. Hence arose the theories of Brown-Séquard as to the value of organic extracts. With two such preparations the reader of the paper has had personal experience during the past two years. The first is red bone-marrow, with which he has had better experience in simple anemia than he had previously had with arsenic, iron and oil. The second is nuclein, which has been shown to possess a certain power to neutralize toxine effects in the animal economy, and which has been derived from the spleen, bone-marrow and thyroid. In the alimentary canal it possesses a distinct antiseptic power. It stimulates the brain and nerves and energizes invalids and the aged. It has been shown to have antidotal power in diphtheria.

The serum-therapy is a logical outgrowth of the germ theory of disease. It has been learned that specific microbes can be isolated, and that they produce specific diseases. More recently it has been found that a germicidal power resides in blood-serum. Artificial immunization, first established for anthrax, has proven a possibility for other maladies, and the potency of antitoxin seems to be increased by repeated inoculations. Hence arises the very important question of dosage and of the necessity of establishing a standard of immunizing power.

In regard to diphtheria, the opinion prevails that sero-therapy has reduced the mortality from 44 per cent. to 21 per cent. One observer had a mortality of 18 per cent. in 525 cases where it had previously been 21 per cent. When, during a certain period, the supply of serum failed, the mortality rose to 51 per cent. Others have failed to report such good results.

The general consensus of opinion in Germany seems to be (1) that the remedy is harmless; (2) that we may see good results from its use; (3) that, as to its immunizing power, results are not yet complete enough to determine its positive value.

On the other hand, it has been shown that serum of one animal when transferred to the circulation of another has a decided globucidal effect on the latter's blood; furthermore, that in the mixed infections so often clinically seen (bacilli and cocci coexisting) the remedy is without decisive power. If the serum shall finally turn out to be injurious, are there any other remedies at our command for use in microbic maladies?

Recently Edinger, of Freiburg, knowing the antiseptic power of mucous secretions and especially of saliva, and that in the latter there is a relatively large percentage of thio-cyanate of potassium, has artificially combined the latter with quinoline to form a new compound that he calls a rhodonate of methyl-pyridine. It has been found that the growth of the Löffler bacillus is inhibited in one hour by a 1–1,000 strength of this solution; that of the staphylococcus aureus, in the same time by a strength of 3–200. It is not caustic like carbolic acid or poisonous as mercuric chloride.

DR. W. E. QUINE, of Chicago, stated that he could unequivocally endorse the claim for good effects of red bone-marrow upon chlor-anemia and also in apparent cases of progressive pernicious anemia. In one case of splenic leucemia treated therewith over a period of several months the increase of red cells had been 17 per cent., and that of hemoglobin 8 per cent., yet the multiplication of white cells went on with even greater rapidity than before, thereby greatly increasing the total blood volume. As to the diphtheria antitoxin, he had observed as deleterious effects, urticaria and one case of transient bloody albuminuria. On the other hand, he had seen a very striking eversion of threatening laryngeal and nasal diphtheria, where it appeared that without the injections death must certainly result in from twenty-four to forty-eight hours. He counselled, however, a cautious attitude toward the serum.

DR. F. B. TURCK, of Chicago, believed that there was a wide field of usefulness for nuclein in the auto-intoxication from gastro-enteric disorders. Nuclein was not a specific but a valuable addition to our therapeutic resources.

The second paper was read by DR. W. BLAIR STEWART, of Atlantic City, N. J., on

CALOMEL: A STUDY OF ITS PHYSIOLOGICAL ACTION AND THERAPY IN 144 CASES OF GASTRO-INTESTINAL DISORDERS. IS IT A DIURETIC, PER SE?

Much of the calomel we buy is impure, or adulterated. Large doses cause griping and pain in the adult. It may be improperly purified in manufacture or may be altered by atmospheric changes. The corrosive chloride is the most common abnormal ingredient. Fatal cases of calomel poisoning are in reality cases of bichloride poisoning. Calomel also may be practically inert from containing barium, calcium or lead. We should always, therefore, test our calomel. It should never be given with chlorides or acids, and not while digestion is going on, owing to the danger of bichloride formation in the stomach. If we will thoroughly trituate (not merely mix) our drug with milk-sugar, our results will be far more gratifying and our dosage greatly reduced.

The remedy is heavy and naturally slow of absorption, owing to the large size of its individual crystals, and the consequent small area of distribution over the alimentary tract. It can be easily detected by the

ammonia test in so small a proportion as 1–1,000. Dr. Stewart gives to an adult one-tenth of a grain (for an ordinary so-called "bilious" state) every half-hour till one grain is taken or until evacuation ensues. In patients previously costive, a small dose of the magnesium citrate is a valuable adjuvant. The combination of soda with calomel is rational, as bichloride formation is prevented and the remedy best absorbed under conditions of alkalinity.

No diuretic effect *per se* has ever been noted. Indirectly it may so act by its general stimulus on all the emunctories. Diuretic effects were not directly observed in one case of scarlatinal nephritis and in one of cardiac mitral dropsy, though both did well on the usual alkaline diuretics.

Calomel is believed to stimulate bile-secretion by its direct action on the liver cells. In diarrhea it is partly absorbed and partly exerts a local antiseptic action. It neutralizes toxines, prevents germ formation and increases peristalsis. It is applicable to diarrhea from improper food, to bilious diarrhea in adults, to dysentery and the bowel flux of typhoid fever. A small dose of podophyllin could be advantageously combined with it in adults and ipecac in children. Valuable results also were found in the diarrhea of alcoholism in so small doses as 1–50 grains combined with 1–100 podophyllin every three or four hours.

Dr. H. D. Didama, of Syracuse, inquired if such small doses were not converted in the system into bichloride, and if the good results were not really due to the latter. If the drug was a direct stimulant to the liver cells larger doses would naturally be the more desirable.

Dr. H. A. Hare, of Philadelphia, maintained that calomel is not converted into the bichloride by the HCl in the stomach, so far as we can judge from laboratory tests, yet clinical experience would seem to indicate that it was so changed. Calomel is a purgative, and the bichloride a cholagogue. There is reason to believe that the calomel is changed in the bowel by the alkaline juices into a gray oxide. As to its pharmaceutical contamination, the testing of a large number of the commercial triturates and powders had not revealed any corrosive sublimate, but some oxide had been found in the soda compounds.

Dr. Stewart, in reply, claimed that laboratory tests in glass vessels with fitted reagents were not comparable with the vital processes in the human body; hence the divergency of results. One is a chemical process, and the other physio-logico-chemical. As to the effect of calomel as a cholagogue, we know that when we give it we get bilious stools. He himself has found bichloride in chemical preparations.

The closing paper of the session was read by Dr. Elmer Lee, of Chicago, on

### THE TREATMENT OF ASIATIC CHOLERA.

After an enumeration of symptoms, and of the various remedies which had been found useless in the disease (including Ferran's and Hafkin's inoculations), he declared pure water to be the only remedy of any practical value whatever. In this disease no germs are found outside the canal in any living tissue whatever. We should introduce warm water by the mouth, and so endeavor to flush down the upper end of the small bowel. It was impossible to use too much. From one to ten quarts daily should be taken. The colon should be irrigated from one to four times daily. If the patient vomits, wait a few minutes and then again give a bulk of water equal to that ejected. Careful attention should be paid to preventing a loss of bodily heat. The writer exhibited a model of an improved fountain syringe and nozzle.

Dr. Hollister had found good effects from tannic-acid injections, and in the use by the mouth of freshly prepared infusions of cinnamon. Neither remedy could by experiment be shown to be markedly germicidal on the comma bacillus. The cinnamon infusion was also useful in children, to lessen the gastro-intestinal irritability of summer diarrhea.

## SECTION IN MEDICINE. — SECOND DAY.

Dr. Frank E. Parsons, of Philadelphia, read a paper on

### SOME POINTS CONCERNING THE ETIOLOGY OF TUBERCULOSIS.

He spoke of the pre-tubercular condition, so called, as an abnormal state which was suggestive rather than symptomatic. The tubercle bacillus alone plays only a partial rôle, for unless the favorable soil exists it is unable to produce the disease. The results of autopsies show that many such bacillary invasions occur, but come to nought from the unfavorable intrasystemic environment which the germs encounter. To bring about a development of the disease, suppuration is necessary and this in turn is dependent on stasis.

Tuberculosis seizes upon those parts where lymphoma or lymphangitis have altered the circulatory condition. It is to be regarded, therefore, as a symptom of lymphatic stasis rather than as a disease *per se*. Lymph stasis arises acutely, as from burns, or in a more chronic manner as from the long-continued abuse of alcohol. As a result, waste products accumulate in the system and become poisonous when not removed by lymphatic drainage.

An excessive waste of tissues from any malnutritive condition naturally causes stasis. It is well known that the venous blood in phthisical patients has a brighter hue than the same blood in health, and that this is due to a deficiency of oxydizable phosphorus; for it has been found that if phosphorus be fed to phthisical patients the venous blood soon returns to its normal hue. The sequence of changes from waste accumulation is first stasis, next a nerve-cell paralysis, and finally an increased blood-supply; all of which precede the bacillary entrance. This fact suggests the fallacy of tuberculin injections, for only those animals are affected who would suffer from lymphatic stasis, no matter what the injected material might consist of. The writer would conclude, therefore, that pulmonary tuberculosis was due primarily to lymphatic stasis, and that the tubercle bacillus was a phenomenon expressive of the disease and was hence symptomatic and not etiological. The so-called scrofulous condition was a pre-tubercular state.

The discussion was postponed until after the reading of the next paper by Dr. DeLancy Rochester, of Buffalo, N. Y.

### REPORT ON THIRTY-FOUR CASES OF TUBERCULOSIS TREATED BY CARASSO'S METHOD.

The sheet-anchor in this plan of treatment, suggested by Carasso, of Genoa, is the use of menthol supplemented by creosote for general disinfection. A piece of linen ten centimetres square is folded once so as to

make a rectangle, and is secured by proper tapes over the nostrils. The latter are at first greased inside so as to prevent irritation. On this pad are poured a few drops of essence of peppermint. The patient is directed to take every fifteen minutes eight or ten deep inspirations with closed mouth. Internally, one teaspoonful is given (every three hours in half a glass of water) of the following mixture: creosote 8 parts, alchohol 550 parts, glycerine 250 parts, chloroform 20 parts, and essence of peppermint 8 parts. Superalimentation is also resorted to, as the patient is given meat cooked to taste, two or three litres of sterilized milk daily, and 400 grammes of good wine. The sputa are most carefully disposed of so as to prevent auto-reinfection.

Carasso reported 44 cases. Many were well advanced, but none with cavities were included. In all bacilli were found. Of this number six died; and in 38 the morbid process seemed to come to a standstill. The average duration of treatment was sixty days.

Dr. Rochester has given the plan a trial in 34 cases of phthisis in the Erie County Hospital. Of these 28 had cavities of varying size, four, infiltration of the right upper lobe, and two of the left upper lobe. In all the process was active and attended with afternoon fever. They had been on oil and in two instances creosote previously; and all had been doing fairly well. The Carasso plan was tried with the omission of the wine. Whiskey was given if a stimulant seemed necessary. He was sorry to state, however, that in two months all his cases were doing badly. Even the two creosote cases, after one week of treatment, began to fare like the rest. All suffered from gastric disturbances, and some vomited. In one instance the pad over the nostrils was complained of as interfering with the breathing; but all the others breathed better and coughed less, though the daily amount of sputum did not seem to lessen.

There are certain physiological objections to this method. The amount of fluid recommended by Carasso practically means one pint every three hours from 6 A. M. till 9 P. M., with one additional pint during the night. So much meat and milk are incompatible under the circumstances, as the lactic acid ingredient would overcome the natural HCl of the stomach. Moreover, in most phthisical cases the stomach is dilated, and, in short, such a plan if rigorously followed out would upset the majority of healthy stomachs. Furthermore, an analysis of the internal remedies given shows that they are especially liable to disturb the digestive action of the stomach. From his personal experience therefore, the writer would conclude that the internal combination of remedies was unphysiological and upsets the stomach, and that the inhalations of the peppermint seemed of decided value and deserved a further trial.

The discussion was opened by DR. DELANO AMES, of Baltimore, who had treated in this manner some 90 cases at the Johns Hopkins Out-Patient Department. Sixty of them had been under observation for about twelve months. His conclusions tallied exactly with those of Dr. Rochester. Carasso had claimed that the bacilli disappeared in from eighteen to sixty days. In two of Dr. Ames's cases the bacilli disappeared — one a patient who was a while in the Adirondacks, and the other a girl who lived in the most unsanitary environment. He believed that the stomach disturbances were unavoidable. Half of his cases had gained in weight at first. The amount of liquid given was entirely too large. The solids should be increased and the liquids diminished. Starches, sugars and fats should be added to the diet. In all of Carasso's cases the lungs alone were affected. This was true in three-quarters of his own cases. The treatment did lessen bacilli and night-sweats, and he believed that the peppermint did undoubtedly lessen dyspnea. As to its general antiseptic effect, we must first demonstrate that it is excreted unchanged through the kidney or other emunctory. This we have thus far been unable to do.

DR. CHARLES DENISON of Denver, Col., said that he had tried to secure an immunizing serum by experiments on dogs by the injection of tuberculin, tuberculocidin and anti-phthisin, but had thus far failed. Severe urticaria and constitutional symptoms had arisen. He did not believe it possible to increase the efficiency of a remedy by passing it through animals. Out of over six thousand injections of tuberculin and tuberculocidin he had not had a single abscess, while this accident had happened in two out of twenty cases of serum-injection made by another observer. The only way to cure tuberculosis is to increase the resisting power of the individual. To attain this result climate and high altitude are all-important. We must, if possible, prevent the disease by rendering the blood immune. Experiments have shown that the number of red cells increases in both men and animals as they live in successively higher altitudes, one series showing under these conditions an increase of sixteen per cent. in the course of a single month. Febrile cases are not as a rule suited to high altitudes. Out of 127 cases treated systematically by him 27 are now living. He has had no bad experience with tuberculin, and cannot understand the current prejudice against it.

DR. KARL VON RUCK of Asheville, N. C., took exception to Dr. Parson's pre-tubercular stage. He does not believe that ulceration and suppuration result from stasis alone. The condition which we call tuberculosis is not due to stasis, but to the bacillus. Animal experimentation is far too complete for us to doubt this. He places little faith in peppermint inhalations, while admitting that menthol will relieve cough. When we think of the difficulty the surgeon has to render any patent surface sterile, it is folly to think that by any inhalation methods, we can disinfect the walls of pulmonic cavities. He would endorse the views of Dr. Denison as to the efficiency of high altitudes. Many wrong deductions have been drawn from the results of injecting various substances into animals. We do not establish immunity but merely toleration just as we do with the alkaloids. He has tried the serum of Dr. Paquin, of St. Louis, on guinea-pigs, and they all died within forty-eight hours. On examination the serum was found full of bacilli of various kinds.

DR. PARSONS in closing, dwelt upon the coexistence of gastric catarrh with pulmonary phthisis, naturally the stomach would become upset with any treatment, and this organ needed its own appropriate treatment. He had no faith in the good effects of creosote on this disease, and regarded it of little value internally.

DR. ROCHESTER further stated that he regarded as pre-tubercular anything which reduced the natural powers of resistance. He does not believe in heredity (except in the ten cases or so where bacilli have been

found in the fetus), though of course a weak constitution can be inherited. So-called congenital cases were probably infected at a very early age by the mother's sputa or through her milk. It was noteworthy that the alleged transmission was generally through the maternal and rarely through the paternal line. He is accustomed to give creosote in claret wine or in mucilage of acacia.

TREATMENT OF TUBERCULOSIS; LATEST REPORT OF CASES TREATED WITH BLOOD-SERUM,

by DR. PAUL PAQUIN, of St. Louis, Mo.

In January, 1895, he commenced the treatment of his cases with blood-serum. Their number is now twenty-two, all in either the second or third stage. They have received daily injections for two months, have gained from one and a half to twenty-two pounds, and are now all living. All were originally emaciated, had bacilli, and had suffered from hemorrhages. Two other cases had died in from three to five days before the treatment was commenced, but they were practically *in articulo mortis* when first seen. No other treatment whatever was employed. When the serum was stopped they grew worse, but improved upon its resumption. The effect of treatment was to diminish the activity of the tubercular process, lessen hemorrhage, improve appetite, lessen cough and nervous irritability. Sero-therapy has also a useful application in surgical tuberculosis, as in knee-joint disease.

In regard to the source of the serum, it must be admitted that the horse is not absolutely immune to tuberculosis. The serum seems to change in power after several withdrawals from the same animal. During the recuperation from the debility caused by the blood-letting, the animals seem to develop toxines of some sort, and hence there is a great variation in the effects produced upon the patients by the injections. The fluid is best preserved by the addition of a little camphor, and from ten to thirty minims are injected daily. In a few instances flushing of the face with a subsequent change to a purplish hue has been observed, lasting from four to five minutes, and occasional chills. It is believed that this severe reaction follows from the needle chancing to be inserted directly into a blood-vessel. Arthritic symptoms have also been observed, especially in people previously rheumatic. The urine is considerably diminished, and in one case albumin was found.

In answer to inquiry, Dr. Paquin said that he immunizes the horse by injecting into the jugular vein first of all, culture fluids containing the toxines of bacilli, then dead bacilli, and finally living bacilli; these injections continuing till all constitutional reaction on the part of the animal has ceased.

In the discussion, DR. KARL VON RUCK, of Asheville, N. C., declared that no animal was absolutely immune toward tuberculosis. To decide this question positively as to the horse, we must kill the animal and examine the tissues, both as to pathology and bacteriology. Dr. Paquin's animal experimentation was as yet incomplete, and no proof had yet been brought forward that the serum had any curative value on either animals or men. Dr. von Ruck had injected some of the serum into guinea-pigs, and they had all promptly died in forty-eight hours. Dr. Paquin had spoken of the spores of tubercle bacilli. He himself had never seen any, and it was doubtful whether this variety of bacilli had spores or not.

DR. ROCHESTER remarked that phthisical cases sometimes recur without any treatment whatever. He believed that specific treatment was out of place in the mixed infections which they generally present.

DR. HENRY D. HOLTON, of Vermont, stated that the serum of the ass would probably be superior to that of the horse, for there was very little fatality from phthisis in those countries where the milk of the former animal was used.

A CASE OF PULMONARY HYPERTROPHIC OSTEO-ARTHROPATHY,

by DR. N. S. DAVIS, JR., of Chicago.

As far as is known, but one other case of this nature has been reported in American literature,[1] but some forty cases had appeared in the European literature of the past five years. The condition was first described in 1890 by Marie, and the malady often goes by his name. Its essential forerunner is always a chronic multiple osteitis involving especially the terminal phalanges of the fingers and toes and the ends of the bones of the extremities. It has to be differentiated from acromegalia. The cause is supposed to be the absorption from the lungs or pleuræ of some chemical poison.

His own patient was a boy some six years old, with a cough and purulent sputa. He had had pneumonia in early life, and one year after the ends of the fingers and toes had begun to enlarge. The wrists were also increased in size. The skin and glands seemed normal, and the body well proportioned. There was slight kyphosis and scoliosis. Physical examination of the chest revealed an enlargement and immobility of the left side in respiration, with dulness and cardiac displacement. A diagnosis was made of lung compression from effusion probably, in view of the character of the sputa. Operation was advised, but thus far parental consent has been withheld. A noteworthy feature is the symmetry of the bone and joint lesions.

A differential diagnosis has to be made, as above stated, from acromegalia, where the fingers are uniformly enlarged, and the spinal lesion generally in the cervico-dorsal region, and a lesion of the pituitary body and surrounding brain tissue, with usually visual disturbances. In the arthropathy the spinal lesion is in the dorso-lumbar region.

DR. S. SOLIS-COHEN stated that he had seen two cases of this affection. In it the hands were generally lengthened, while in acromegalia they were broadened. Kyphosis was frequent in tubercular affections, and he was inclined to regard this arthropathy, with its attendant features, merely as an exaggeration of what we so often find in a lesser degree. The wrist and ankle joints were here involved, while in acromegalia they generally escaped. The trophic disturbance in these cases was a development of certain strictures at the expense of others, and was probably the result of a pus toxine.

DR. H. B. SEARS, of Beaver Dam, Wis., read

MEASURES CALCULATED TO MODIFY ACUTE INFLAMMATION OF THE RESPIRATORY TRACT.

DR. A. H. BURR of Chicago, read a paper on

HYDROTHERAPY IN FEVERS; ITS RATIONALE AND TECHNIQUE.

He gave a general description of the febrile state,

[1] Packard: American Journal of Medical Sciences, June, 1892.

claiming that the pyrexia results from the toxic derangement of neural resistance to and neural control of heat evolution. The coal-tar antipyretic craze was already on the wane. A general review of the history of the cold bath showed that its value depended first, on the physical effect of water as a neural stimulant, and, secondly, on the susceptibility of the sympathetic nervous system with its control over the glandular apparatus of the body, thirdly, on the reflex influence on the respirative circulation, metabolism, elimination and pyrexia.

Winternitz has already shown that the cold bath increases the number of leucocytes in the blood current, increases also hemoglobin and blood-gravity. Thayer's experiments on the blood from the ear gave identical results. Probably there is no actual increase in cell-formation, but the heightened activity of the circulation sweeps out into the stream the various cells which have lodged in the diverse corners of the vascular system.

The writer then described his apapratus for giving cold baths. It consists essentially of a rectangular frame which can be laid on the bed. To its sides are fastened tapes from a large rubber sheet, which is sloped down inside the frame and is under the patient. Thereby is formed an improvised tub which will easily hold twenty gallons and which can be syphoned out when the bath is ended. He bathes according to the full Brandt method.

The discussion was opened by DR. DAVIS, JR., of Chicago, who gave his adherence to all the views expressed in the paper. The bath did not shorten the duration of the disease, but it did lessen the danger and make the patient more comfortable.

DR. CHAS. G. STOCKTON of Buffalo made an earnest plea for the introduction of the Brandt method into small communities. He thought that the apparatus devised by Dr. Burr would contribute greatly to this end.

DR. COHEN thought that sponging on a rubber sheet had the disadvantage of merely collecting small pools of water about the patient. Immersion of the whole body is better. He would consider Dr. Burr's apparatus as next useful to a tub.

DR. ROCHESTER, of Buffalo, called attention to the friction-massage as an essential part of the Brandt method.

DR. JAMES TYSON, of Philadelphia, was an advocate of the bath. He had, however, lost some cases where it had been used, death resulting from hemorrhage and perforation.

DR. J. M. ANDERS, of Philadelphia, thought there were well-recognized limitations to the use of the bath. It was contraindicated where hemorrhages occurred. It ought then to be stopped for a while at least.

The closing paper of the session was read by DR. JAMES TYSON, of Philadelphia, on

THE SYMPTOMATOLOGY OF IRREGULAR OR ATYPICAL GOUT.

He alluded to the recent work of Roberts, who had shown that the uric acid circulated in the blood in the form of a quadriurate of soda. Local symptoms were probably produced by local deposits, though we might not be able to detect the latter.

The symptoms of irregular gout were of the most diverse variety. We might have dyspepsia, lithate deposits in the urine, eczema, muscular pains, deep-seated pains in the tongue, a feeling of crackling about the cervical spine, knotting about the small joints, pain in the back (especially the lumbar regions, in the femoral adductors and gastrocnemii), articular pains and nodosities; not uncommon also were headaches, pain in the palms of the hands, folliculitis about the nose, scleritis, corneitis and conjunctivitis, pharyngitis, tonsillitis, bronchitis and asthma, dryness of the tongue and skin; also hemorrhages into the bladder; in the nervous system were change of temper, capriciousness, melancholia and insomnia. He would lay special stress upon vesical hemorrhage, the frequent uric acid cause of which was not generally known.

He would lay down, therefore, the following rules to assist in diagnosis of atypical or irregular gout:

(1) Uric acidemia, though it was rarely possible to detect uric acid in the urine with the means at the disposal of the general practitioner.

(2) The supervention of an attack of typical gout on the subsidence of other ailments or in alternation therewith.

(3) The history of a previous regular attack.

(4) Heredity.

(5) History of exposure to lead-poisoning.

(6) History of the mode of life.

(7) High colored and scanty urine; the relation of gout to lithemia was a vexed question but there were no urinary deposits in pure lithemia.

(8) Glycosuria.

(9) Chronic interstitial nephritis, the unfortunate result toward which gouty tendencies inevitably lead.

(10) The results of therapeutics.

DR. STOCKTON remarked that gout did not necessarily lead to lithemia at all.

SECTION IN MEDICINE. — THIRD DAY.

DR. J. M. ANDERS, of Philadelphia, read the first paper, entitled

THE COMPLICATIONS OF MALARIA, WITH STATISTICS.

The cases studied were all taken from Philadelphia hospitals during the past twenty-one years, and numbered 2,122. Of this number only 1,780 were for various reasons available for study; and of the available number complications were noted in 189, or nearly 11 per cent. The types of malarias were as follows: Intermittent 1,434, remittent 75, malarial cachexia 27, chronic and irregular forms 22, unclassified 222. All doubtful cases were excluded. The relative frequency of complications is seen by the following statement: Heart disease 21, enteritic 21, neuralgia 18 (4 being supra-orbital), pleurisy 13, rheumatism 13, phthisis 12, typhoid fever 8, pneumonia 6, edema 7, jaundice 5, and nephritis 5. In addition some 30 other maladies were listed, each occurring from one to four times. Dr. Anders was inclined to believe that certain clinical states regarded as complicating malaria should be rather regarded as symptomatic of that condition.

With regard to some of the chronic complications, as heart disease, tuberculosis and nephritis, it might be said that they predisposed to miasmatic poisoning. He himself believed that malaria promoted phthisis. Pleurisy may occur in paludal cases, but is probably of secondary occurrence.

It has been a matter of dispute as to the relation of pneumonia to malaria. We do know, however, that there is an intermittent type of broncho-pulmonic symptoms influenced by quinine. Of the six pneumo-

nia cases mentioned by Dr. Anders only one died, and all were in connection with the intermittent type of the disease. Five were lobar and one lobular. This complication seemed to be less common in temperate climates than in the tropics.

As to typhoid fever, it was possible for both poisons to coexist in the system but this was rare. Nor was there probably such a thing as a compound causative agent.

The next paper, by DR. ROBERT H. BABCOCK, of Chicago, on

THE RELATIVE CONDITION OF THE TWO VENTRICLES WITH REFERENCE TO THE ADMINISTRATION OF DIGITALIS,

was read by Dr. Holliston.

The writer said that according to current text-books the indications for digitalis have been a weak and rapid heart; low vascular tension, with or without a mitral murmur; a dilated right ventricle, and dropsy. Cardiac dilatation implied more or less arterial anemia, with venous hyperemia. In many instances all the indications might exist for the use of foxglove, and yet the remedy did harm. Often far better results would be secured by the use of nitroglycerine and strychnine, the nitrate of the latter being in the writer's judgment the preferable salt. It was also necessary to distinguish between the action of digitalis on the two ventricles, and this divergence is probably produced by the varying conditions of the two coronary arteries.

Dr. Babcock did not believe that the remedy had much effect on the right heart. It was contraindicated in excessive dilatation of the heart. There the preferable thing to do was to first remove eight or ten ounces of blood from the circulation, though free purgation might answer.

DR. W. T. ENGLISH, of Pittsburg, Pa., read the next paper on

CARDIAC INSTABILITY DUE TO ACID AUTO-INTOXICATION.

An explanation of many of the so-called diathetic conditions is to be sought in abnormal chemical processes occurring in the body. Many abnormal heart phenomena were due to acid accumulation within the system and acid excretion was contemporaneous with cardiac irritability and vascular weakness because the heart grew weary from the effect of disturbed nutritive processes upon the myocardium. It became dilated, and thence ensued valvular incompetency.

In dyspepsia we saw an illustration of this fact in the effect of the acid blood on the heart, first on the myocardium and the nervous ganglia contained therein, and second through the coronary arteries on the myocardium and the deeper ganglia. As a result, the heart became temporarily exhilarated, so to speak; the systole shorter and less powerful; and finally the organ would stop in diastole; though it often happened that if the auto-intoxication was gradual and slight a marked degree of tolerance could be induced. Reduced alkalinity would lead to capillary spasm. These considerations were all proven by the effect of administering acid. The important deduction to be drawn from all these facts was that in conditions of heart debility, acid food should be carefully avoided.

DR. A. F. PATTEE, of Boston, followed with a paper on

THE THERAPEUTICS OF THE SENILE HEART.

In treating the cardiac condition of senility, reference must be had to the decrepitude of the individual rather than to the mere number of his years. Some men die of old age at forty-five while others may live on, and die from a mere accident at ninety. In infancy, the vessels are thin and elastic while in senility they have undergone morbid changes and are more or less rigid or unyielding, and the striated muscle of the heart itself fails to respond because of general malnutrition to the automatic demands made upon it.

In the treatment of this condition, reference must be had to three main indications — diet, rest and medicines. The amount of food consumed should be cut down after middle life. Stimulants ought to be omitted, and the amount of liquid ingesta carefully regulated. Most harm is done to senile hearts by allowing the patients to drink fluids *ad libitum*. Dinner must be taken at mid-day and longer intervals allowed to pass between meal times than in earlier years.

DR. STOCKTON did not believe that cardiac disease was often caused by acid auto-intoxication.

DR. G. W. WEBSTER, of Chicago, stated that in Dr. English's paper no distinction had been made between vegetable and mineral acids. The former are split up in the body and excreted as alkaline carbonates, and cannot, therefore, possibly increase systemic acidity.

DR. ALBERT E. STERNE, of Indianapolis, read a paper on the

TOXIC ORIGIN OF NERVOUS DISEASES.

The writer believed that inflammations of both the central and peripheral nervous organs were due in a great measure to the effect which certain discovered and undiscovered toxines exert upon them. In some the result is acute and speedy, as in anterior poliomyelitis; in some, the toxine is the product of micro-organisms as in diphtheria and typhoid affections, while in others the poison is of an inorganic character as in lead, arsenic, mercury and alcohol cases.

THE EFFECTS OF PURE OXYGEN INTRODUCED INTO THE BODY IN VARIOUS WAYS UPON THE HEMOGLOBIN,

by DR. GEORGE J. PRESTON, of Baltimore, Md., who first gave a *résumé* of the results of various experiments as to the effect of oxygen upon the body. It has been found that for the first few minutes there is but little rise in pulse-rate or vascular tension, but the respiration is lessened. It has been a mooted question as to whether inhalations of oxygen give more oxygen to the red cells than does ordinary air.

Dr. Preston has placed rabbits in glass jars into which the washed gas was led from a receiver. The results of four experiments are as follows, caustic potash being used in the chambers to absorb the expired $CO_2$:

| | | | |
|---|---|---|---|
| 1. Time, 5 min. | H. before, 58%. | Respiration before, 100 | |
| | after, 58%. | " | after, 200 |
| 2. Time, 15 min. | H. before, 52%. | " | before, 100 |
| | after, 80%. | " | after, 80 |
| 3. Time, 30 min. | H. before, 58%. | " | before, 100 |
| | after, 62%. | " | after, 60 |
| 4. Time, 60 min. | H. before, 52%. | " | before, 100 |
| | after, 67%. | " | after, 35 |

The rectal injections of the gas in dogs gave the same general results.

He has also noted the following results where men have been given oxygen inhalations:

1. Weight, 140 lbs. Time, 7 min. H. before, 82%; after, 92%
2. Weight, 160 lbs. Time, 5 min. H. before, 74%; after, 87%
3. Weight, 150 lbs. Time, 6 min. H. before, 76%; after, 85%
4. Weight, 190 lbs. Time, 5 min. H. before, 80%; after, 90%

No special symptoms of exhilaration or quickened pulse were noted. The inhalations do not increase the oxygen in the plasma but with it the red cells all get their normal complement of oxygen. It has also been found that in chloroform anesthesia the H runs down from 80 per cent. to 68 per cent. in the course of fifteen minutes. Da Costa has shown that the same thing is true in ether narcosis.

The final paper of the Session was read by DR. A. E. ROUSSEL, of Philadelphia, on

LEAD ENCEPHALOPATHY, WITH REPORT OF A CASE.

This patient was a male artist, about thirty-five, who gradually became anemic and debilitated. H. 85 per cent.; C. 2,500,000. The second sound of the heart was accentuated; and the urine concentrated, but free from albumin or sugar. Three days after being first seen he suffered from an excruciating attack of colic, with constipation; and lead was found in the urine. It was learned on inquiry that he was in the habit of washing his brushes in water and then wiping them on his lips. A lead line was found on the gums; and on the insides of the cheeks were bluish patches, which grew white on being washed with oxygenated water. After the colicky attack his general condition gradually grew worse until one day, while walking in the street, he felt a sudden malaise fell down, and developed violent convulsions and delirium. He was removed to the hospital, where the same symptoms persisted and the straight jacket became necessary. Temperature 101.6°. The convulsions were finally relieved by ether, and the patient fell into a deep sleep lasting seven hours, from which he awoke perfectly conscious and made a quick recovery.

The great indication in the cerebral cases is to induce sleep. In lead colic and constipation better results, in the writer's hands, have followed the use of large doses of olive oil than any other remedy both for the pain and the constipation.

*(To be continued.)*

## Recent Literature.

*Transactions of the American Orthopedic Association.* Eighth Session held at Washington, D. C., May 29, 30 and 31, 1894. Volume VII. Philadelphia: Published by the Association, 1895.

This handsomely bound volume of 358 pages contains a number of progressive articles of great interest to the specialists in the subject to which they relate as well as to general surgeons. Among them may be mentioned: "The Radical Treatment of Severe Talipes Equino-varus in Children," by Edmund Owen, M.B., F.R.C.P., London, England; "The Treatment of Congenital Dislocation of the Hip," by E. H. Bradford, M.D., Boston; "Tubercular Disease of the Shoulder-Joint," by W. R. Townsend, M.D., New York; "The Correction of the Deformity of Hip-Disease," by V. P. Gibney, M.D., New York.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, MAY 30, 1895.

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## THE KEELEY CURE *VERSUS* THE RATIONAL TREATMENT OF INEBRIETY.

THE superintendent of the Hartford Retreat for the Insane, Dr. Henry P. Stearns, in the seventy-first annual report of that institution, just received, makes public facts and statistics of the greatest interest in view of the recent attempts made in various States to influence legislation in favor of the Keeley Cure, with the object of making its use compulsory in public inebriate asylums.

Dr. Stearns has examined the records of the Retreat for the last twenty years, and finds that of 95 patients treated during that period for inebriety, 70 were discharged as "recovered." The word "cured" is not used, and the word recovered means simply recovered from the acute effects of alcohol, and free from any special craving for it. All the patients so classed, claimed that they had no desire for alcohol and were confident that they never should have such a desire. The superintendent justly states that a "cure" cannot be claimed from a treatment of a few weeks or months only, such as these patients had. If permanent cures are effected in such cases, they are secured after discharge, through the influence of a favorable environment, force of will, and a strong determination on the part of the patient, combined with such medicines and food as will conduce to secure this result. These favorable conditions must necessarily be continued for some length of time in order to restore the nutrition of the brain tissues, impaired by chronic alcoholism, and establish their normal action.

The theory upon which Keeleyism is founded, namely, that these elements of the nervous system can be suddenly forced back into normal action by the influence or shock of a violent stimulant or poison of another character, introduced into the system for a few days or weeks, is at variance with medical experience in this and all other forms of disease of long duration.

The claim of Dr. Keeley and the syndicate representing him that 90 or 95 per cent. of cases of inebriety

can be cured in a space of four weeks has not been substantiated by facts, and efforts to secure legislation making the employment of this treatment compulsory in State institutions — especially when we consider the fact that the nature of their remedies is kept secret — are as absurd as if the proprietors of any secret remedy should endeavor to compel the use of their nostrum in public hospitals.

The claim that the Keeley patients who have been discharged as cured are in reality so, is far from proven. There are no reliable statistics with regard to the percentage of cures in Keeley patients, as the patients are received and treated by thousands, and little or nothing is usually known of their subsequent history. A slight contribution to the record of these patients is made by Dr. Stearns, since of the 52 patients affected with toxic insanity admitted to the Retreat within the last four years, 18 have been graduates of Keeley institutes. Several of them have been suicidal when admitted, and two of them committed suicide after they were prematurely removed from the Retreat by their friends.

Dr. B. D. Evans, Medical Director of the Asylum at Morris Plains, N. J., in an article published in the *Medical News*, May 18, 1893, presented a table of 88 cases of insanity, all of which had been treated in Keeley institutes and graduated as cured.

Dr. R. M. Griswold, of Derby, Conn., in his statement before the committee of the present legislature of Connecticut on humane institutions, presented the following figures in reference to the results of "Keeley Cures": Of 34 cases from Danbury, Conn., which have been treated by Keeley methods within the last three years, he has found 13 relapses. Of 17 cases from the towns of Derby, Ansonia, and Seymour, he has found seven relapses. Of 94 cases from Norwich, New London, Rockville, Willimantic, Putnam, Windsor Locks, and Providence, R. I., he has found 42 relapses.

Several other reports of a similar nature from physicians who have had Keeley graduates under their treatment are presented.

The statement of Dr. B, who was a patient at the Retreat and a graduate of a Keeley institute is extremely interesting.

He says that during the four weeks while he was under treatment, there was no time when he could not take liquor, and that several of the 35 patients who received treatment with him did take liquor every day, procuring it in the village. Patients were marshaled together in a line and given the "shot" four times a day, and "a tonic mixture" every two hours, except at night. The physician who was in charge at the time was himself a graduate of one of the institutes. He afterwards abandoned the Keeley Cure business, and resumed the practice of general medicine, but within a year began again to take alcohol and became "a mental and physical wreck."

He further states that of 38 patients who were treated with him, 14 relapsed within a year, and of these three died of Bright's disease. He knows nothing of the subsequent history of the others, the larger portion of whom came from other sections of the country.

A letter from another physician who had also received the Keeley treatment is of similar tenor, and contains the statement that of the 33 patients whom he knew, and who were taking the cure when he did, 20 had relapsed into their old habits, some of them after taking the cure twice and even three times. The concluding paragraphs of the report contain a refutation of the Keeley methods and statistics so fair and forcible that we cannot refrain from quoting them in full.

"It should, however, be stated that the above statistics are of very little value as accurately presenting the whole per cent. of relapses of the so-called cures. The conditions are such that this cannot be ascertained. Neither those who have relapsed nor their friends are forward or, indeed, willing to advertise this fact. They rather desire as far as possible to conceal it, while only those cases which have become notorious are reported. Imperfect as they are, however, they serve to indicate that the claim that 90 per cent. of drunkards are cured by Keeley methods is without foundation; and also how preposterous is the petition that the legislature should become responsible for the treatment of inebriety by secret remedies.

"The course pursued by Dr. Keeley in keeping the nature of the supposed cure a secret, proves very conclusively that he has little confidence in it himself. He does not dare to make it public, but rather prefers to trade upon the desires and hopes of credulous families and legislatures and the unfortunate weaknesses of inebriate brains. If he or any other person should discover a remedy for chronic inebriety which would effect a cure in 90 per cent. of all cases in four weeks, and make its nature public for use by all physicians, he would be hailed by men everywhere as one of the great benefactors of the race, and both wealth and honors would be showered upon him."

## A DANGEROUS POPULAR ANTISEPTIC.

Ledermann publishes in the *New York Medical Journal* for May 18th, an account of a case of diffuse external otitis, of an extremely severe and resistant type, due to taking a friend's advice and treating a slight itching of the ears with carbolic acid. The strength employed is not known: "some pure carbolic acid was poured into a glass of water and syringed into the ears." Ocular symptoms and carboluria, showed the systemic poisoning, and the patient was in great danger of atresia of one of her auditory canals.

The popular knowledge that carbolic acid is an antiseptic is productive of a great deal of harm. The fact that it was the first antiseptic employed by Sir Joseph Lister in wound treatment, has been in many ways unfortunate for the human race. Surgeons have until recently regarded it as indispensable to have their instruments in a tray of carbolic solution, which if strong enough to sterilize the instruments, destroyed the surgeon's hands for practical purposes; and if, as was usually the case, it was so weak as not to actually burn the hands did no good as an antiseptic — circumstances which were bad for the patient, the surgeon, and all concerned. The disadvantages of carbolic acid, however, can be best seen in out-patient clinics, whither patients continually come with the skin of their hands parboiled and peeling off, exposing the raw subcutaneous tissue more or less eroded by the carbolic acid which a kind friend has advised them to use for a slight cut, or burn or abrasion. The desirability of ascertaining the strength of what they are using does not occur to them. They are the victims of popular "Listerism" in its most primitive

form. If the lay mind could only be made to appreciate that carbolic acid is always dangerous and seldom efficient as an antiseptic, a great deal of unnecessary suffering would be prevented.

## MEDICAL NOTES.

THE ILLNESS OF PROFESSOR HUXLEY. — The *British Medical Journal* reports that Professor Huxley's condition has of late markedly improved. His temperature is normal, and he is eating and sleeping well. We feel sure that our readers will be gratified to know of this improvement in his condition.

ALARMING SPREAD OF SYPHILIS IN RUSSIA. — Syphilis in Russia is reported to be rapidly on the increase. The great extent of the disease in 1890, when there were ascertained to be a million syphilitics in the various Russian hospitals, gives some slight idea of the prevalence of the disease in that country. Professor Pospeloff, of Moscow, has begun the organization of a section for the discussion of prophylactic measures against syphilis at the Twelfth International Medical Congress.

THE DUKE OF CAMBRIDGE AND THE INDIAN MEDICAL SERVICE. — The Duke of Cambridge is severely and justly criticised in an editorial in the *British Medical Journal* of May 11th for alluding in his response to the toast of "The Army" at the Royal Academy Dinner to Surgeon-Major Robertson as "that brave civilian." The military medical services of the crown are said to be already dissatisfied, and all ready to resent such a matter as their commander-in-chief forgetting to give them their titles. The English military medical service is apparently held under a ban in much the same way that the medical staff of the United States navy is held by the officers of the line — a state of things which renders it difficult to secure the better class of candidates for both services. The importance of securing first-rate men for military medical positions is not sufficiently recognized by the officers of the line here or in England. Within a very short period it has been found necessary to make certain changes in the examinations for the British army and Indian medical services, with a view to securing better candidates for the positions. The effect of such a slight from the commander-in-chief of the royal forces cannot help causing discontent in Indian medical service, and tending to lower the estimation in which the army medical service is held, and to keep off the better class of candidates for the service.

### BOSTON AND NEW ENGLAND.

ANNUAL MEETING OF THE AMERICAN NEUROLOGICAL ASSOCIATION. — The American Neurological Association will meet next week in Boston for the first time in its history. As will be seen in another column, the programme is full of interest. The Association is one of the oldest of the societies that go to make up the Congress of Physicians and Surgeons, having just completed its twentieth year of life. We can assure it a hearty welcome in Boston, and we hope that its meetings, which are open to the profession, will be fully attended.

THE ANTITOXIN SUPPLY FOR THE CITY OF BOSTON. — The Board of Health of the City of Boston is now able to supply antitoxin from the horses which have been undergoing immunization at Gallup's Island, under the care of Professor Ernst. The State Board of Health will thus be relieved of the tax upon its resources of furnishing a supply to the City Hospital, which has been found rather difficult owing to the extent of the demand from more remote parts of the Commonwealth. There are now four horses at the Bussey Institution, belonging to the State Board of Health, and four at Gallup's Island under the care of the City Board of Health, which are in condition to supply antitoxin.

THE MAINE GENERAL HOSPITAL. — Drs. S. C. Gordon, S. H. Weeks and L. W. Pendleton have resigned from the staff of the Maine General Hospital.

DR. COLVIN'S RECORD OUTDONE. — With regard to the JOURNAL note on May 9th on Dr. Colvin's having practised for fifty years in the same office, the *Newport Herald* of May 20th calls our attention to the fact that one of our own subscribers can present a record which is even better. "Newport can certainly beat this noble record by presenting our esteemed citizen Dr. Henry Edward Turner, the city physician, now in active practice, who graduated at the University of Pennsylvania, in March, 1836, and who has practised for fifty-nine years. He celebrated his golden wedding on July 18, 1894, having a reception in the same room in which his wedding reception was held, fifty years ago, and in the same house always occupied by the doctor and his wife during their married life. On May 18, 1895, he had been continuously a subscriber to the *Boston Medical and Surgical Journal* since he entered upon his professional life." It is a great satisfaction that this incident has called our attention to the fact that we have such constant and faithful readers, and we haven't the least doubt that the subscription to the JOURNAL has much to do with Dr. Turner's remarkable record.

### NEW YORK.

JANITOR'S CHILDREN AND DIPHTHERIA. — The evil effects of janitors having their residence in the public school buildings is again illustrated. The nine-year-old son of the janitor of School No. 89, at 134th Street and Lenox Avenue, has been attacked with diphtheria, the school building has been closed by order of the Board of Health, and as a result, 2,300 children will be deprived for some weeks of their school privileges.

DEATH OF DR. MORRIS HENRY. — Dr. Morris Henry, for many years prominent as a surgeon and dermatologist, died May 19th in the 60th year of his

age. He was born in London, England, and pursued his studies in London and at the Polytechnic at Brussels. He was graduated in medicine at the University of Vermont, and during the late war served as assistant surgeon in the navy. After the war he settled in New York and became a member of the Board of Police surgeons. For a number of years Dr. Henry was very active in society and literary work, and he originated and edited the *American Journal of Dermatology*.

DEATH OF COUNT VON KESSLER. — The death is announced in Paris of Count Adolph William von Kessler, who for some years past has resided principally in New York. At the time of the Franco-Prussian war he was living in a magnificent mansion in Paris. Herr von Kessler, as he was then known, was an officer of the Society of the Geneva Cross, which did such admirable work among the wounded of both armies, and when the Prussians entered Paris he turned his home into a hospital for the soldiers. For this act the Emperor Frederick gave him the patent of nobility. He also did material service in introducing the ambulance service in New York and several foreign capitals. Count von Kessler was born in Hamburg and was fifty-five years old at the time of his death.

DIPHTHERIA AND ANTITOXIN IN NEWARK, N. J. Dr. Herman C. Hale has been re-elected President of the Board of Health of Newark, N. J. On May 21st he made the first report of the bacteriological laboratory recently established under the auspices of the board. The laboratory was started in February and on March 25th the first of the horses purchased by the city was injected with diphtheria toxine. Since January 1st there have been reported 288 cases of diphtheria in Newark. Of these, 90 were treated with antitoxin and 198 were not. Of the former 23 died, and of the latter, 60; the percentage of deaths being respectively 25 and 32. The result, therefore, shows a decrease of 7 per cent. in the mortality under the use of antitoxin.

A BAD RECORD. — Frederick Waring, who was recently arrested on the charge of practising medicine without a license, preferred by the Health Board of the City of Yonkers, was found guilty before Judge J. X. Donohue in the City Court on May 25th. He was fined $50, and sentenced to six months' imprisonment in the Kings County Penitentiary. The man has a very bad record. He was sentenced to one year's imprisonment in the Kings County Penitentiary for practising without a license. Two years later he was again sentenced to five years' imprisonment in Sing Sing prison for the same offence. There are also two indictments pending against him in New York for manslaughter. He was twice placed on trial charged with causing the death of a woman named Clinton by criminal malpractice in 1886, but as both juries disagreed, he was paroled upon his own recognizance.

## Miscellany.

### TWENTY-FOURTH CONGRESS OF THE GERMAN SOCIETY OF SURGERY.

THE Twenty-fourth Annual Congress of the German Society of Surgery was held at Berlin, April 17–20, 1895. A large number of eminent representatives of German surgery were present.

Von Bergmann spoke of cerebral surgery, which, despite all the light brought by modern localization-doctrines and the aid of antisepsis, must always have a limited field, by reason of inherent difficulties, and especially the difficulty of diagnosis. Thus, of tumors of the brain, only twenty-nine per cent. of cases are suitable for operation, and surgical intervention is really practicable in a much smaller percentage. Progress in the future will be made in the attainment of certainty in diagnosis and in improvement in the technique of operations. Even now, the method of osteoplastic resections enables us to remove quite large growths. Bergmann exhibited to the Congress an instrument of his own invention, a small circular saw, made to work with great speed by means of an electric motor, which had enabled him to operate with great celerity; a large bone-flap is circumscribed, and the section begun with the saw is finished with fine scissors.

Attempts have been made to cure epilepsy by operation; success has attended only those cases where the epilepsy was due to motor-cortical lesion. Abscesses, though presenting great difficulties of diagnosis, have in many instances been opened after trephining. Surgeons have even dared to attack thrombosis of the sinuses. The transverse sinus has been reached through the mastoid bone, incised, and clots have been turned out; the patient has got well after antiseptic dressings, tamponading and ligature of the internal jugular vein. Out of thirteen cases, Bergmann has had six recoveries.

Von Bramann, of Halle, exhibited a patient from whom a voluminous sarcomatous tumor of the cerebrum had been extirpated. This tumor had caused a paralysis of the left arm. It was as large as the closed fist; occupied the motor region of the right hemisphere, and had invaded the dura mater and inner wall of the cranium. The gap in the bone resulting from the operation measured twelve centimetres. The patient made a good recovery, and though three years have elapsed, there has been no return of the sarcoma. The paralysis has completely disappeared, and the patient is able to work.

Mikulicz, of Breslau, spoke of the results of surgical intervention in Basedow's disease. He has operated eleven times; the characteristic symptoms, and especially the tachycardia were well marked in all; five patients presented a grave dyspnea. All the patients survived the operation which consisted twice in simple ligature of the thyroid arteries; in all the other cases the thyroid gland (hyperplastic or cystic) was extirpated. Six of these patients have got completely well; four have been considerably benefited; one has experienced but slight improvement. In the latter case, however, the operation consisted in tying the thyroid arteries on one side only.

In cases where the thyroid is removed, the cardiac troubles and the exophthalmia are long in disappearing. He would refer the pathogeny of the disease to

auto-intoxication by the products of the hypertrophied thyroid; the disease may, however, begin as a neurosis.

Kocher, of Berne, reported the results of one thousand thyroidectomies, a review of which was given in our editorial of last week.

Schuchardt, of Stetten, showed a patient, a young girl, on whom he had operated for suppurative peritonitis due to perforation of a round ulcer of the stomach. He did not excise the ulcer, but simply closed the perforation by buried sutures. Heusner, of Barmen, who was the first to save a patient by this operation (sixteen hours after the perforation and when the peritonitis was well advanced), stated at the meeting that he had lately had three unsuccessful operations.

Körte, of Berlin, reported the results of nine extirpations of tumors of the cecum. Four of these were carcinomatous, four tuberculous, and one was a case of actinomycosis. All these patients survived the operation, though the patient affected with actinomycosis died shortly after owing to the progress of the disease. After making these resections, Körte always practises the lateral implantation of the ileum in the colon, the end of which is invaginated and sutured.

Kölliker, of Leipzig, communicated an interesting case of rupture of the left kidney with hematuria, due to a fall. On the fourth day, the symptoms being alarming, he made a vertical incision in the left lumbar region; "the upper pole of the kidney was in great part detached from the rest of the organ by a laceration extending to the hilum." He put in a drainage-tube and plugged the wound. "The temperature became normal that day, the anuria disappeared, and the patient was well at the end of six weeks."

Mikulicz, of Breslau, made an interesting report on the "Surgery of the Stomach." He had performed 103 operations on the stomach; 23 were fatal. The most frequent causes of death were collapse and pneumonia. A preliminary exploratory incision in the middle line, above the umbilicus, should always be made for diagnostic purposes. It is then easy to tell if the case is suitable for operation. If the patient is very feeble, he should have the evening before the operation "a large subcutaneous injection of artificial serum." It is in gastrostomies, gastro-enterostomies, and resections for carcinomatous growths and their results that these operations have been attended with the greatest mortality; but even if a survival of only a few months can be hoped for, the operation should be performed.

Rydygier, of Hamburg, spoke of the treatment of intestinal invagination. The mortality of operations for the relief of this accident is still very high, because the operation is almost invariably done too late, the surgeon being called in only at the last extremity. In the acute forms, an early operation is just as imperatively demanded as in strangulated hernia. In all recent cases where the invaginated cylinder presents no signs of gangrene, it is to disinvagination that one should have recourse. Out of 24 cases which he has thus treated, eight have been saved. In all the other cases, where disinvagination is impossible or contraindicated, resection is the only procedure offering any chances of success. Of twelve patients thus operated on, three have survived. He advises König's operation which consists in resecting the invaginated cylinder after incision of the invaginating cylinder; however, the procedure in question is not applicable to cases of gangrene extending to this latter portion of intestine.

In the chronic forms of invagination, operative intervention is not so imperative as in the acute forms. Nevertheless it is important to interfere before a new aggravation of the symptoms renders the operation more difficult and more dangerous. The patient, as long as the invagination persists, is menaced with peritonitis by perforation. Disinvagination may be attempted with success several months after the onset, if there are no serious adhesions. If disinvagination is impossible, it is to resection that the surgeon should have recourse, and not to entero-anastomosis.

Alsberg, of Hamburg, stated that in three cases of acute invagination he had succeeded in obtaining disinvagination by laparotomy. In one of these cases, the operation was not performed till the sixteenth day. All three patients got well.

## Correspondence.

### A LONG PERIOD OF FECUNDITY.

PLATTSBURGH, N. Y., May 23, 1895.

MR. EDITOR: — Last evening I attended a woman in her thirteenth confinement. The child weighed four pounds when dressed. The mother is forty-six years old. Her oldest child is a little more than twenty-eight years of age. This makes a continuous period of actual child-bearing of about twenty-nine years, the mother having been married at the age of seventeen. The point of interest in this case is the long time of *actual* fecundity. Both father and mother seem to think this time may yet be extended.

D. S. KELLOGG, M.D.

### NEW SURGICAL SPLINTING.

SOUTH BOSTON, May 24, 1895.

MR. EDITOR: — Kindly permit me to correct an error which your correspondent apparently makes in his otherwise admirable report of the American Medical Association meeting in Baltimore. I refer to his report of my paper read there. He writes: "The edges of the splint must be covered with chamois skin." As a matter of fact, none of the splints shown there by me were so treated except one — my splint for hip-joint fixation; all the others, comprising splints moulded directly upon the patients, and employed to produce efficient fixation of the ankle, wrist, knee, elbow, shoulder, finger and toe joints, having no chamois skin, because in such splinting it is unnecessary.

I write this letter because I earnestly desire as accurate notions of my work in surgical splinting to prevail in Boston as elsewhere.

A matter of less importance is that the title of my Baltimore paper should have read, "The New Surgical Splinting: Report of Cases Exemplifying It."

Truly yours,

EDWARD A. TRACY, M.D.

### ANOTHER CASE OF "FRACTURE OF THE HUMERUS FROM AN UNUSUAL CAUSE."

PHILADELPHIA, May 25, 1895.

MR. EDITOR: — I note in your issue of March 21st, a case reported of fracture of the humerus from an unusual cause. Just such an one occurred to a friend of mine, himself a physician of very large reputation now and flourishing mightily, whose name I might quote, as he gave me

leave to report the matter fifteen years ago. At that time he was acting as surgeon to a trans-Atlantic liner, and was (and is) a man of great muscular strength, chiefly of a nervous explosive kind, however, but of great vitality and endurance. This accident resulted from the attempted feat of two men sitting opposite at a small table and each using the same hand, right to right or left to left, elbows resting on the table and thus trying who could push the opponent's hand backward till the knuckles touched the level. As in the case described by Dr. Monks, the break made so loud a noise that it was heard at a great distance, and was probably greatly assisted by the motion of the ship producing some collateral strain. This fracture was at the junction of the upper and mid thirds, and was followed by very little pain. He, being the only medical man on board, adjusted the parts himself and applied an original splint. The result was most satisfactory, except that a few days later a fall on the deck refractured the arm at the same place, yet the deformity was almost *nil*, attributable to his own skill or will or vigor.

It is of interest to mention also that a couple of months or so afterwards, while throwing an apple to a friend at a considerable distance, and presumably with his utmost force, the arm was broken again, but not in the same locality, about the junction of the lower and mid thirds, in no way disturbing the old seat of damage. The arm is now free from any recognizable deformity or lack of power or skill (as the statistics of one of the most celebrated gynecologists in the world will testify). Moreover, though subjected to many and various opportunities for damage in many lands and vicissitudes, he has enjoyed in the main excellent health and no evidence of fragilitas ossium other than those curious casualties within so brief a time, and while living a life of unusual healthfulness.

Very truly yours,
J. MADISON TAYLOR, M.D.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 18, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung disease. | Diarrheal Diseases. | Diphtheria and croup. | Measles. |
| New York | 1,926,000 | 771 | 329 | 10.80 | 12.87 | 2.47 | 5.46 | 2.60 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,437 | 372 | 115 | 11.34 | 14.04 | 2.97 | 3.51 | 1.35 |
| Brooklyn | 1,043,000 | 355 | 126 | 19.60 | 12.04 | 1.96 | 5.88 | 1.96 |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,107 | 194 | 60 | 9.69 | 19.38 | .51 | 5.10 | — |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 91 | 29 | 9.90 | 15.40 | 1.10 | — | 2.20 |
| Cincinnati | 325,000 | 102 | 30 | 4.90 | 18.62 | .98 | — | — |
| Cleveland | 325,000 | — | — | — | — | — | — | — |
| Pittsburg | 272,000 | 73 | 29 | 16.44 | 5.48 | 5.48 | 4.11 | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 34 | 4 | 5.88 | 23.53 | 2.94 | — | — |
| Charleston | 65,185 | — | — | — | — | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 109,410 | 39 | 12 | 10.24 | 12.80 | — | 5.12 | — |
| Fall River | 92,233 | 24 | 6 | 10.35 | 6.90 | 6.90 | — | — |
| Lowell | 90,613 | 29 | 7 | 3.45 | — | — | 3.45 | — |
| Cambridge | 79,607 | 15 | 5 | — | 20.20 | — | — | — |
| Lynn | 65,123 | 13 | — | 7.69 | 7.69 | — | — | — |
| Springfield | 50,284 | 15 | 5 | 20.00 | 6.66 | — | — | 13.33 |
| Lawrence | 49,900 | 8 | 2 | — | 25.00 | — | — | — |
| New Bedford | 47,741 | 25 | 9 | 8.40 | 12.00 | 4.00 | 4.00 | — |
| Holyoke | 43,340 | — | — | — | — | — | — | — |
| Brockton | 33,939 | 6 | 0 | 33.33 | 16.66 | — | — | — |
| Salem | 33,158 | 9 | 2 | — | — | — | — | — |
| Haverhill | 32,925 | 11 | 2 | 9.09 | 9.09 | — | — | 9.09 |
| Malden | 30,209 | 10 | 2 | — | — | — | — | — |
| Chelsea | 29,806 | 10 | 1 | 10.00 | 20.00 | — | 10.00 | — |
| Fitchburg | 29,383 | 5 | 1 | — | 20.00 | — | — | — |
| Newton | 28,837 | 8 | 2 | — | 12.50 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,384 | — | — | — | — | — | — | — |
| Waltham | 27,000 | 7 | 1 | — | — | — | — | — |
| Quincy | 19,642 | 7 | 1 | 28.56 | — | — | 14.28 | — |
| Pittsfield | 18,802 | 6 | 0 | 16.66 | 16.66 | — | — | — |
| Everett | 16,585 | 2 | 1 | 50.00 | — | — | 50.00 | — |
| Northampton | 16,331 | 5 | 1 | 20.00 | — | 20.00 | — | — |
| Newburyport | 14,073 | 6 | 3 | 12.50 | 12.50 | — | — | — |
| Amesbury | 10,920 | 2 | 0 | — | — | — | — | — |

Deaths reported 2,352; under five years of age 816; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 292, acute lung diseases 295, consumption 321, diphtheria and croup 97, diarrheal diseases 53, measles 37, scarlet fever 28, whooping-cough 17, typhoid fever 23, cerebro-spinal meningitis 20, erysipelas 9, malarial fever 7, small-pox 3.

From scarlet fever New York 13, Boston 3, Brooklyn and Pittsburg 2 each. Washington, Fall River, Lynn, Brockton, Quincy and Newburyport 1 each. From typhoid fever Philadelphia 8, Brooklyn and Washington 3 each. New York, Boston and Pittsburg 2 each. Providence, Nashville and Worcester 1 each. From cerebro-spinal meningitis Brooklyn 11, New York 3, Philadelphia, Boston, Chelsea, Quincy, North Adams and Pittsfield 1 each. From whooping-cough New York 7, Philadelphia and Brooklyn 4 each. Cincinnati and Brockton 1 each. From erysipelas New York, Brooklyn and Boston 1 each. From malarial fever Brooklyn 3, New York and Washington 2 each. From small-pox Cincinnati 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending May 11th, the death-rate was 17.7. Deaths reported 3,585; acute diseases of the respiratory organs (London) 247, whooping-cough 81, measles 83, diphtheria 65, diarrhea 60, fever 31, scarlet fever 31.

The death-rates ranged from 13.5 in Brighton to 25.8 in Plymouth, Birmingham 19.5, Bolton 22.7, Cardiff 14.4, Gateshead 14.1, Huddersfield 15.2, Leeds 18.1, Leicester 17.3, Liverpool 23.0, London 16.6, Manchester 22.3, Newcastle-on-Tyne 21.7, Nottingham 14.5, Sheffield 16.3, Sunderland 13.6.

## METEOROLOGICAL RECORD.

For the week ending May 18th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather. | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..12 | 29.66 | 64 | 74 | 54 | 81 | 78 | 77 | S. | N.W. | 14 | 18 | O. | O. | .06 |
| M..13 | 29.93 | 59 | 67 | 44 | 66 | 50 | 58 | N.W. | N.W. | 12 | 12 | O. | F. | .14 |
| T..14 | 30.04 | 44 | 59 | 37 | 66 | 79 | 73 | N.E. | E. | 8 | 13 | O. | O. | |
| W..15 | 29.82 | 49 | 56 | 42 | 86 | 71 | 78 | N. | N.E. | 15 | 7 | R. | O. | .59 |
| T..16 | 29.95 | 52 | 61 | 43 | 48 | 43 | 46 | W. | N.W. | 14 | 8 | C. | C. | |
| F..17 | 30.11 | 54 | 66 | 41 | 35 | 49 | 42 | W. | S.W. | 8 | 12 | C. | F. | |
| S...18 | 30.14 | 44 | 47 | 42 | 77 | 76 | 76 | S. | N.E. | 12 | 6 | R. | O. | .24 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 18, 1895, TO MAY 24, 1895.

CAPTAIN ROBERT J. GIBSON, assistant surgeon, will be relieved from duty at Fort Sam. Houston, Texas, by the Commanding Officer of that post, and will report in person to the commanding officer Fort Thomas, Kentucky, for duty at that post.

MAJOR WILLIAM H. GARDNER, surgeon, is relieved from duty as attending surgeon and examiner of recruits at Headquarters Department of Dakota, and ordered to Fort Reno, Oklahoma Territory, for duty at that post, relieving MAJOR HENRY M. CRONKHITE, surgeon.

Leave of absence for four (4) months, on surgeon's certificate of disability, with permission to leave the Department of the Missouri, to take effect on being relieved from duty at Fort Reno, Oklahoma Territory, is granted MAJOR HENRY M. CRONKHITE, surgeon.

Leave of absence for ten days to take effect from the date of the conclusion of his examination for promotion, is granted CAPTAIN LOUIS W. CRAMPTON, assistant surgeon.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 18, 1895.

L. L. YOUNG, assistant surgeon, to examination for promotion.

F. W. Olcott, passed assistant surgeon, from the "Constellation" and to the "Enterprise."

## MAINE MEDICAL ASSOCIATION.

The Forty-third Annual Meeting will be held in Common Council Chamber, City Building, Portland, Me., Wednesday, Thursday and Friday, June 5, 6 and 7, 1895.

### WEDNESDAY, JUNE 5th.

*Morning Session, at* 10 A. M. — Prayer. Reading of the Records of the last meeting. Business. Report of Treasurer. A Unique Case of Apoplexy, by R. D. Bibber, M.D., Bath. Cerebral Embolism, by John F. Hilton, M.D., Lewiston. Neurasthenia, by W. F. Hart, M.D., Camden. Report of Visitors to the Portland School for Medical Instruction. Report of Visitors to the Maine Insane Hospital. Report of Visitors to the Medical School of Maine. Voluntary Papers or Reports of Cases.

*Afternoon Session, at* 3 P. M. — Reception of Delegates from other Societies. President's Address. Business. White's Operation for Hypertrophied Prostate, by F. C. Thayer, M.D., of Waterville. Vaginal Hysterectomy, by W. K. Oakes, M.D., Auburn. Pyosalpinx, by J. F. Thompson, M.D., Portland. Voluntary Papers or Reports of Cases. Reports of Delegates to other Societies.

*Evening Session, at* 8 P. M. — Hennequin's Method of Treating Fractures of the Thigh and both Bones of the Leg, by Alfred King, M.D., Portland. A Case of Myxœdema Successfully Treated with Thyroid Extract, by J. K. F. Rogers, M.D., South Portland.

### THURSDAY, JUNE 6th.

*Morning Session, at* 10 A. M. — Business. Tuberculosis of the Knee-Joint, by S. H. Weeks, M.D., Portland. Report of the Committee on Revision of Code and By-Laws. Radical Cure of Inguinal Hernia, by C. E. Williams, M.D., Auburn.

*Afternoon Session, at* 3 P. M. — Reception of Delegates from other Societies. Election of Officers for the ensuing year. Treatment of Pulmonary Tuberculosis, by C. A. Peaslee, M.D., Wiscasset. Dietetic Treatment of the First Stages of Phthisis, by J. F. DeCosta, M.D., Buckfield. A Clinical Study in Typhoid Fever, by D. E. Parsons, M.D., Oakland.

*Evening Session, at* 8 P. M. — Annual Oration, by A. K. P. Meserve, M.D., Portland. Sequelæ of Diphtheria, by J. A. Spalding, M.D., Portland. Cases in Practice, by B. F. Bradbury, M.D., Norway.

### FRIDAY, JUNE 7th.

*Morning Session, at* 9 A. M. — Business. Reports of Delegates to other Medical Societies. Voluntary Papers or Reports of Cases. Report of the Board of Censors. Unfinished Business.

CHAS. D. SMITH, M.D., *Secretary.*

## AMERICAN NEUROLOGICAL ASSOCIATION.

### WEDNESDAY, JUNE 5th.

*Morning Session, at* 10 A. M. — Address by the President, Dr. Philip Coombs Knapp, of Boston. 1. Dr. J. A. Booth of New York, Hysterical Amblyopia and Amaurosis. Report of five Cases treated by Hypnotism. 2. Dr. George J. Preston, of Baltimore, A Case of Total Hysterical Anesthesia in the Male. 3. Dr. F. X. Dercum, of Philadelphia, Two Cases of Railway Spine, with Autopsy. 4. Dr. C. L. Dana, of New York, A Case of Hereditary Chorea, with Autopsy. 5. Dr. Chas. K. Mills, of Philadelphia, The Localization of Lesions in the Pons. 6. Dr. Geo. L. Walton, of Boston, Exhibition of a Specimen showing Fracture of the Cervical Vertebræ.

*Afternoon Session, at* 2 P. M., at the Harvard Medical School. 7. Dr. M. Allen Starr, of New York, A Lantern Exhibition of Photo-micrographs of Nervous Histology; Golgi Stains. 8. Dr. Edward Wyllys Taylor, of Boston, A Lantern Exhibition of the Medulla Oblongata of a Chimpanzee, with other Specimens. 9. Dr. William Townsend Porter, of Boston, The Part of Inhibition in the Physiology of Respiration. 10. Dr. Thomas Dwight, of Boston, Exhibition of the Brain of a Chimpanzee. 11. Dr. Burt G. Wilder, of Ithaca. Fissural Studies (*a*) Two Philosophers; (*b*) An Apparent Duplication of the Central Fissures. 12. Dr. Wm. N. Bullard, of Boston, The Diagnosis of Hemorrhagic Cerebral Pachymeningitis.

### THURSDAY, JUNE 6th.

*Morning Session, at* 9 A. M. — 13. Dr. James J. Putnam, of Boston, Hyperostosis Cranii, with Illustrations. 14. Dr. Charles K. Mills, of Philadelphia, Cortical Localization in the Light of Recent Investigations in Minute Anatomy. 15. Dr. C. E. Riggs, of St. Paul, Injury to the left Angular Gyrus. 16. Dr. E. D. Fisher, of New York. Report of a Case of Tumor of the Cerebellum, with Autopsy, Operation by Dr. John F. Erdmann. 17. Dr. Geo. J. Preston, of Baltimore, Cases of Brain Tumor. 18. Dr. Geo. L. Walton, of Boston, Presentation of a Brain Tumor.

*Afternoon Session, at* 2 P. M., at the new McLean Asylum, Waverley. — 19. Dr. H. A. Tomlinson, of St. Peter, Insanity and Phthisis, their Concurrency, Co-existence, and Transmutation. 20. Dr. Theodore Diller, of Pittsburg, The Association of Tabes and Paralytic Dementia. 21. Dr. Theodore H. Kellogg, of Willard, The Pulse in Insanity, Original Study of Cases. 22. Dr. H. M. Bannister, of Chicago, The Home Treatment of Insanity. 23. Dr. Wm. Noyes, of Foxboro, Must Acute Paranoia be admitted into our Nomenclature? 24. Dr. C. E. Riggs, of St. Paul, The Criminal Insane Abroad. 25. Dr. Irving C. Rosse, of Washington, The Conservative Value of the Play Impulse.

### FRIDAY, JUNE 7th.

*Morning Session, at* 10 A. M. — 26. Dr. Joseph Collins, of New York, a Contribution to the Pathology and Morbid Anatomy of Amyotrophic Lateral Sclerosis. 27. Dr. Wm. C. Krauss, of Buffalo, Report of a Case of Peroneal Muscular Atrophy, with Autopsy. 28. Dr. James Hendrie Lloyd, of Philadelphia, Telegrapher's Paralysis. 29. Dr. James Wright Putnam, of Buffalo, Writer's Cramp. 30. Dr. G. M. Hammond, of New York, Report of a Case of Multiple Neuritis in an Infant. 31. Dr. Geo. L. Walton, of Boston, The Etiology of Obstetrical Paralysis.

*Afternoon Session, at* 2 P. M. — 32. Dr. Smith Baker, of Utica, Auto-mimesis. 33. Dr. Morton Prince, of Boston, Pseudo-neurasthenia. 34. Dr. C. H. Hughes, of St. Louis, Adianoia, the true Paranoia. 25. Dr. J. T. Eskridge, of Denver, Subject to be announced.

DR. G. M. HAMMOND, *Secretary.*

The profession are cordially invited to attend the meetings of the Association, which, with the exceptions above noted, will be held in the hall of the Boston Society of Natural History.

## THE ASSOCIATION OF AMERICAN PHYSICIANS.

The Tenth Annual Meeting will be held in Washington, D.C., May 30th and 31st, and June 1st, Dr. William Osler, Baltimore, President.

The programme presents the following papers: The President's Address, by Dr. William Osler, Baltimore; Leucomaine Poisoning, Dr. B. K. Rachford, Cincinnati; Some Toxicogenic Germs found in Poisonous Foods, Dr. V. C. Vaughan and Dr. George D. Perkins, Ann Arbor; Effects of the Gaseous Products of Decomposition upon the Health of Animals that are Compelled to Respire them, Dr. A. C. Abbott, Philadelphia; Renal Affections following Influenza, by Dr. G. Baumgarten, St. Louis; A Contribution to the Study of Thoracic Tumors, Drs. William Pepper and Alfred Stengel, Philadelphia; The Etiology of Idiopathic Hypertrophy of the Heart, Dr. James T. Whitaker, Cincinnati; The Transmission of Mitral Diastolic Murmurs, Dr. J. P. C. Griffith, Philadelphia; The Use of the Differential Stethoscope in the Study of Cardiac Murmurs, Dr. A. H. Smith, New York; The Cause of the Exaggeration of Sounds over the Right Upper Chest, both in Health and Disease, Dr. Charles Cary, Buffalo; The Preparation of Antitoxin, Dr. H. C. Ernst, Jamaica Plain, Mass.; A Case of Madura Foot (Mycetoma Pedis), Dr. J. G. Adami, Montreal; Gonorrheal Arthritis — Clinical Observations, Dr. W. P. Northrup, New York; Hyperthermy up to 66.5° C. (148° F.), Dr. A. Jacobi, New York; A Comfortable Way of Using Cold in Fevers, Dr. F. H. Williams, Boston; Some Observations on the Spleen and Marrow in Leucemia, Dr. J. Guitéras, Philadelphia; Goitre in Michigan, Dr. George Dock, Ann Arbor; Displacements of the Liver, Dr. J. E. Graham, Toronto; Carcinoma of the Liver with Cirrhosis, Dr. M. H. Fussell, Philadelphia; Epidemics of Typhoid Fever, Scarlet Fever, and Diphtheria Due to Milk Infection, Dr. S. C. Busey, Washington; Forcible Artificial Respiration — the Fell-O'Dwyer Apparatus — Cases, Dr. W. P. Northup, New York; Carosso's Treatment of Pulmonary Tuberculosis, Dr. H. C. Ernst, Jamaica Plain, Mass.; On the Direct Faradization of the Mucous Membranes of the Stomach and the Intestines of Animals (Dogs, Cats, and Rabbits), Dr. S. J. Meltzer, New York; Two Cases of Fat Necrosis, Dr. C. G. Stockton, Buffalo.

## RECENT DEATHS.

PROF. CARL VOGT, the distinguished German biologist, died at Geneva on May 6th, at the age of seventy-eight years.

J. D. ROBINSON, M.D., of Wooster, O., died May 9th, aged seventy-five. He is said to have performed the first amputation in the War of the Rebellion.

## BOOKS AND PAMPHLETS RECEIVED.

Nouvelle Méthode de Traitement de la Tuberculose Pulmonaire, du Lieutenant Colonel G. M. Carasso, Docteur en médecine, Directeur de l'Hôpital Militaire de Gênes.

List of Surgical Splints Exhibited at the Columbian Exposition, Chicago, 1893. By Edward A. Tracy, M.D., Boston, Fellow of the Massachusetts Medical Society. 1894.

Report of a Surgical Clinic (Illustrated), Complimentary to the Visiting Members of the Mississippi Valley Medical Association. By Prof. Augustus C. Bernays, M.D. 1895.

# Address.

## PRESIDENT'S ADDRESS,

DELIVERED AT THE TWENTY-FIRST ANNUAL MEETING OF THE AMERICAN NEUROLOGICAL ASSOCIATION, BOSTON, JUNE 5, 1895.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

GENTLEMEN: — Our programme is long, and contains much that is more interesting than anything I can offer. One or two duties, however, must be performed before I can invite you to listen to it. First of all, I must thank you for the honor conferred upon me in choosing me to preside on this occasion; next, I must offer to you, in the name of the medical profession of Boston, a most hearty welcome on this your first visit as an Association to our city, with a wish that you may pay us many more such visits; and, finally, I must present to you greetings and regrets from our honorary and associate members abroad, Erb, Hughlings Jackson, Ferrier, Horsley, and others, whose letters will be read later. Having done this, it might be more fitting to begin upon our programme without delay; but, in view of the fact that the Association has just completed its twentieth year of life, I may perhaps be pardoned for detaining you for a few words of retrospection and of suggestion for the future.

On the fifteenth of December, 1874, a letter was sent out, signed by seven men, three of whom are still active members of this society. Its opening sentence was as follows: "It is contemplated to institute a Society, to be called The American Neurological Association, to be devoted, as its name imports, to the cultivation of Neurological Science, in its normal and pathological relations." Five and thirty men, including the signers, accepted the invitation, and on the 2d, 3d and 4th of June, 1875, the first meeting of the new Association was held in New York. Twenty members were present, and Dr. Weir Mitchell was elected as the first president, but, on his withdrawal, the late Dr. Jewell was chosen to fill his place. The new society was something of an experiment; there were but two similar associations in this country, the Ophthalmological and the Otological, where there are to-day thirteen or more. Few neurological societies existed abroad, and it was not until eleven years later that the Neurological Society of London was organized. Up to that time, in most parts of the world, the neurologist had had to content himself with the crumbs that fell from the alienist's table, and those, apparently, had been so scanty that at first we declined to share our own feasts with the alienists. We have grown more liberal with years, so that we have even offered them of our abundance of late, although the food was not wholly to their relishing. With that exception, which was but temporary, we have pursued no exclusive policy. Although dealing with the highest and most difficult problem of medicine, the study of the brain of man, ours is not the specialty of a single organ; we must search every part of the body to make our diagnosis, and be general physicians first and neurologists afterwards. We went out with our first invitation into ophthalmological highways and hedges, and we have ever welcomed the physiologist, the general physician, and the surgeon into our ranks.

I must leave it for others to speak of those early and, if tradition be correct, somewhat stormy days of the Association's life. A number of the founders of the society are happily with us, who have taken honorable part in the transactions during the whole twenty years; we regret the absence of the rest who are still on our rolls — Bartholow, Bannister, Mitchell and Seguin. Others, too, can speak from better knowledge of those who met twenty years ago and who have now finished their work: Jewell, Hun, Clarke, McBride and Van Bibber. A word of tribute, however, is due to one of our late members who has died this year, that genial comrade Matthew Dudley Field, who sent, only a week before his death, a cheering message, full of hope that with restored health he might be here to-day.

Of the work which we have done during the last twenty years little need be said. We have flourished as a society, our membership has increased from thirty-five to eighty-five, our meetings have steadily grown in interest and in profit, and we have done our share in the establishment and the success of the most important medical body in this country, the Congress of Physicians and Surgeons. Of the scientific work which has been done under the auspices of the Association it can honestly be said that if, both in neurology and psychiatry, the work done by our members in the last twenty years were to be deducted, America's claim to consideration in the scientific world in those branches would be poor indeed. We have done something to add to the enormous mass of knowledge concerning the nervous system that has been accumulated during the last twenty years. What the advance in that knowledge has been we all know, and time is lacking to review it here.

Although on such an occasion as this a little self-gratulation is pardonable, it is the part of wise men not to indulge in the vain-glorious boastings of the Fourth of July orator, but to ask ourselves not what we have done, but rather what we have left undone. As we look over not only the more complete bibliographies, but also the various references in the works of our colleagues abroad, — where, by the way, we find much more frequent notice of American work than there was twenty years ago, — we may observe that American names are far less frequently quoted in the sections on anatomy and experimental physiology than in those on symptomatology, pathology and therapeutics. Our programme to-day shows that we are doing some work in these directions, but the amount that has been done is still below the mark. We have as yet produced no work on anatomy to set beside even the elemental work of Edinger, much less the exhaustive treatise of Dejerine, to cite only one or two examples; nor have we produced any work on the experimental physiology of the nervous system to rank with those of Munk, Ferrier, Luciani or Goltz. In these branches we have done too little, but, in extenuation, it must be said that it is only within a few years that the facilities for experimental research have been at all adequate, even in our larger cities, and we are still in great need of endowments sufficient to carry on such research. The beginnings that we have now made show that when it shall become possible for a young man to make a living, though but a plain one, from purely scientific work in the field of neurology, we may expect results which will put us more nearly on an equality with our foreign brethren.

We need make less apology for the clinical and pathological work that we have done in the last

twenty years. It has perhaps been given to but few of us to attain the grisly immortality which links our names to some new form of disease, but we have added a few new titles to the list of diseases and their symptoms, and we have done much to define more accurately and to describe more in detail the affections discovered by others. As might be expected from the eminently practical nature of the American mind, our greatest additions to the world's knowledge have been made in the domain of therapeutics. The contributions of American neurologists and surgeons have done much to teach us the all too narrow limitations of the operative therapeutics of the nervous system. But for an oversight, we should have been first in the field in the operative treatment of cerebral tumors, and we can claim second place on account of the character and amount of the work that has been done in that field in this country. We have done something, perhaps enough, to prove that neither hypnotism nor treatment by the animal extracts is likely to prove a panacea for the affections of the nervous system. Important, too, as it may be to discover a new stain or to define a new tract of fibres in the pons, our chief aim, after all, is to heal the sick, and, in spite of the promise or lack of promise of brain surgery, animal extracts, electricity and hypnotism, there has been no discovery as yet in these twenty years in the domain of the nervous system, that has brought comfort and healing to so many people as that of the rest cure by one of our active, and soon, I hope, to be honorary, members, Dr. Weir Mitchell, of Philadelphia.

So much for our past. We need in the future a journal of neurology under our own control, with a sufficient financial support to enable us to publish fitting illustrations with the reports of our anatomical and pathological work. We need, too, in most of our cities, that recognition in our large hospitals which our President urged last year, a recognition which will come when we have taught the public the necessity and importance of our special field of work. While we are teaching, too, let us do something toward making the general physician realize that the ignorance of neurology, which he too often professes, is far from creditable, and that it would render him ridiculous in any country but this.

The problems before us which demand our attention are too numerous to be rehearsed. Much of the brain cortex still resembles the map of Africa as it used to be in our boyhood — an unexplored blank. We must apply the Golgi methods in disease, and define, if possible, the pathology of the neuron. We must banish the word functional, by demonstrating the pathology of the so-called functional diseases. We must study still more precisely the symptoms of disease, and put our knowledge of electrical diagnosis and the sensory disturbances on a more exact basis. We must differentiate the various clinical forms of insanity, and bring some order out of the chaos labelled neurasthenia. Above all we must remember, as has just been said, that our chief aim is to heal the sick. What shall it profit our patients, if we know the course of the axis cylinder of every neuron in their spinal cords, and the exact percentage which each factor has in the etiology of tabes or general paresis, or the finest points in differential diagnosis, or the minutest pathological changes, if the end of it all is to be a Weigert stain?

It is too much to hope that in the future we can remove sclerosed tissue and substitute healthy nerve cells or fibres in its place, or that we can do more than alleviate for a time the symptoms which such sclerosis causes. Our hope, therefore, must be in prevention.

The discussion which we held last year at the Congress in Washington indicated the importance of infection in the etiology of many disorders of the nervous system. In the work of the bacteriologist and the boards of public health lies much hope for the future. When we can deal with syphilis and tuberculosis as we can with small-pox, and as we seem likely to do with diphtheria, we shall have done much toward the prevention of some of the most hopeless affections of the nervous system.

For those affections dependent upon a defective nervous organization, an unstable and invalid brain, much has already been done and still more can be done in the future when the public is ready to admit the unpleasant fact that such persons are mental cripples, and must have their lives ordered for them as the surgeon now orders life for the hunchback or the cripple. They need a definitely prescribed existence, as to their food and drink, their stimulants and sedatives, their work and play, their study and exercise, their reading and society. This is done now in a few cases, but we see daily many other cases where it is in some degree advisable, and where, if it were done, many morbid nervous and mental conditions might be prevented, or at least materially benefited. For such people and for many who call themselves well, the conditions of our social life are injurious, but we are none of us young enough to hope to change the entire social fabric. There is very much in the world that does no harm to a well man, which these people cannot bear; we cannot alter the world to suit them, but, when we are permitted, we can shield them from the special things of the world that prove injurious.

In yet another way we can protect the unstable and those who are not sufficiently developed mentally to act absolutely as their own rulers, and thus we can prevent a certain amount of nervous disease. As our boards of health strive to protect the public from infection by specific germs, so it should become our province to guard the public against mental contamination from the degenerates of whom we are just now hearing so much. We restrain the lunatic who has homicidal impulses; we should also strive to counteract the evil influences of the fanatical, neurotic and degenerate, in the fields of sociology, politics, morals, religion, art and literature, and point out their morbid tendencies.

We have heard something too much for a number of years of the increased nervousness of our age. The neurotic and the degenerate, like Job, speak in the anguish of their spirit, and complain in the bitterness of their souls. They tell us that the world is sick with their disease, and with damnable iteration, they analyze, not only for their physicians but for the public at large, all the mental, moral, physical and sexual aberrations of their diseased minds. It is a matter of doubt, however, how much harm has been done to the nervous system of the healthy man by the penny-post, or the telegraph, or the railway train, or even the daily paper. Let us admit, however, that in the struggle for existence as manifest in our day, the weaker brain must succumb, that social and mental unrest are great; yet, if we look back a little, we find throughout history the same struggle, perhaps under different conditions, the same unrest, the same doubt,

the same *tædium vitæ*. The Preacher, two thousand years ago, held that all was vanity and vexation of spirit, yet, even then, he found no new thing under the sun. With the diminution of infectious diseases, better food, more rational standards of living, and greater security for life and property, it is more than probable that there has been an actual diminution in the total amount of nervous disease, even though greater knowledge permits us to detect the less marked manifestations of such disease. Greater or less though the amount may be, there is still much that is distinctly preventable; let it be our aim in the future to aid in its prevention.

## Original Articles.

### AN EXAMINATION OF SOME RECENT STATISTICS IN REGARD TO ETHER, AND A CONSIDERATION OF SOME PRESENT METHODS OF ITS ADMINISTRATION.[1]

BY JOHN B. BLAKE, M.D.,
*Surgeon to Out-Patients, Boston City Hospital; Physician to Genito-Urinary Department, Boston Dispensary.*

ONE of the most astonishing facts in the history of anesthesia, is the rapidity and completeness with which chloroform supplanted ether throughout the whole of Europe and a considerable portion of the United States. Within ten months after its first public administration in the Massachusetts General Hospital, ether was being used throughout almost the entire civilized world. Within two and one-half years after its discovery, there were not more than half-a-dozen large clinics on the Continent which had not discarded ether for its rival, chloroform. For so general an action as this, there must have been reasons, and reasons readily apparent; and if there were arguments against such action, they must either have been disregarded or else were essentially less apparent upon a short examination of the qualities of both anesthetics, and until a sufficient number of reliable statistics were collected upon which a final judgment might be based.

The advantages which chloroform possessed over ether and which were immediately apparent to the surgeons using anesthetics were in effect:

(*a*) The smaller amount of chloroform necessary to produce complete anesthesia;

(*b*) The fact that the patient becomes unconscious under the influence of chloroform more quickly, and perhaps, more quietly;

(*c*) That chloroform is non-inflammatory and non-explosive;

(*d*) That there is less irritation of the respiratory tract with chloroform;

(*e*) That the recovery from chloroform is more prompt and the after-effects less marked.

That these advantages were at once obvious to the observers of that time, and that in a considerable measure they hold good to the present day, must be admitted by any impartial investigator.

They were naturally just that class of phenomena which would be demonstrable upon a short and rather superficial examination. That they were not the most essential attributes of anesthesia required time to prove.

The one final and absolutely decisive test by which any anesthetic is to be judged, must be, of course, its effect on human life. Compared to this, all other inconveniences or discomforts are of small moment. The ideal anesthetic and the ideal method of its administration must be, first, that which while producing complete anesthesia, in no degree imperils life; second, that which is rapid and effectual in its action, and which in its careful administration is not unpleasant to the patient; and third, which is free from undesirable after-effects, and from the accidents of inflammability, explosiveness, or great bulk. That we shall ever possess such an agent is very doubtful, but that we shall always try to discover it, is simple duty.

Since the final test, therefore, which is to decide the choice of an anesthetic is the safety of its action, a large amount of trustworthy and accurate statistics bearing upon this point must be gathered as a basis for such a choice. Statistics have been at hand for many years, but for some reason have failed until recently to convince many of the European surgeons. Perhaps the wide-spread belief that disasters following chloroform were exaggerated, and those following ether overlooked, may in part account for this. At all events, the writer has been unable to discover any other sufficient reason; and it seems hardly fair to believe for a moment that eminent disciples of the English, German, French, Italian and other European schools, should so unanimously favor the use of chloroform, unless upon firm conviction after thorough examination.

A student who attended the Harvard Medical School a half-a-dozen or more years ago was told that statistics showed one death in 20,000 ether cases, and one death in 2,000 chloroform cases; and accepting these statistics as the average of those attainable at that time, it was beyond the comprehension of the average student that chloroform could be used in any civilized country, except perhaps in those rare cases in which all authorities agree that ether is contraindicated. And yet, even at that time, Boston, Lyons (France), and to a lesser extent Geneva and New York, Berne, and perhaps Dresden, were the only great cities of the world in which ether was being used to the complete or even comparative exclusion of chloroform.

The crusade which some of the English medical journals, notably the *Lancet*, began some half-dozen years ago against the indiscriminate use of chloroform, is well known.

About four years ago, Juillard in Geneva, and Gurlt in Berlin, offered almost simultaneously fresh statistics upon this subject, which had been almost overlooked for many years. These statistics, collected in different countries, but mainly Continental, agree on the whole so nearly, and emphasize so strongly the greater safety of ether, that they have seemed worthy of close examination. They are characterized by the same modern scientific spirit that is manifest in other branches of learning; they come from different races and from various countries; they are rich in details. Besides those of Juillard and Gurlt, several other extensive articles have appeared within the past two years, notably the papers of Vallas of Lyons, Garre of Tübingen, and Vogel of Berlin. Finally, one noteworthy and very interesting communication has been published by Professor Miculicz, of Breslau, which though shorter than some of the others, attracts attention to itself as being one of the very few which does not accept the superiority of ether as proven.

[1] Being one of two papers receiving the second Lyman Prize for 1894.

For four years past, Gurlt has presented at the annual meeting of the Deutschen Gesellschaft für Chirurgie the statistics of chloroform and ether narcosis which he has been able to collect in each preceding year. From the first these figures have shown a decisive and unvarying proportion in favor of ether. As a result, the number of etherizations in Germany for 1893–94 was practically double that of the previous year, while the number of chloroform cases was diminished; a pleasant comment upon the confidence of the German surgeons in the investigator, and upon the spirit which prompts them to use the method which careful statistics and practice proves to be the best, even though to them personally the less attractive — though it must be confessed that it has taken several years for the spirit to move them in the latter direction.

Gurlt's final statistics, given to the Gesellschaft für Chirurgie at Berlin in April, 1894, included the observations for four years. The figures are:

| | |
|---|---|
| 166,812 chloroform cases . . . | 63 deaths, or 1- 2,647 |
| 26,320 ether cases . . . . | 2 deaths, or 1-13,160 |
| 8,011 ether and chloroform cases . | 1 death, or 1- 8,014 |

All observers report increased secretion, saliva and mucus, and the occasional development of bronchitis and pneumonia after the use of ether.

Other German observers are:

| | | |
|---|---|---|
| Zeigler, | 600 ether cases . | no deaths |
| Vogel, | 1,200 ether cases . | no deaths or serious complications |
| Körte, | 600 ether cases . | no deaths or serious complications |
| Tschmarke, | 500 ether cases . | no deaths or serious complications |

Some late French statistics are as follows:

Vallas recalls the fact that in 1867 a commission at Lyons, appointed to investigate the question of anesthesia, reported that "in twenty years there were but six deaths from all ether cases, and that though ether certainly may kill, it is much less dangerous than chloroform."

Ollier recorded 40,000 ether cases without a single death; and no death ensued in 730 recorded by Chalot, in 6,500 recorded by Tillier, or in 15,000 recorded by Poucet.

The writer has not been able to collect many statistics of English surgeons. Those found, are given here, together with the comparative French figures.

Williams (English), 14,581 ether, 3 deaths, 1 to 4,860; 12,368 chloroform, 10 deaths, 1 to 1,236.

Middlesex (see Vallas), 1,050 ether, 1 death; 208 chloroform, 1 death.

Juillard, 314,738 ether, 21 deaths, 1 to 14,987; 524,507 chloroform, 161 deaths, 1 to 3,258.

Attention is called, not only to the enormous figures of Juillard, but to the large number of observers who offer statistics upon small numbers of cases, in which all essential and controvertial points have been carefully noted. Such statistics necessarily must be most valuable and the desirability of obtaining them from all parts of the world is too obvious to need more than a passing comment. It is precisely this class of statistics which is most difficult to find in the United States.

According to these observers, vomiting would seem to be less frequent on the Continent than in America. The estimates of the various writers vary from "vomiting slight and rarely observed," to "vomiting present in about half the cases." Subcutaneous injections of morphine, before the ether, is the means most widely suggested as a preventive. Occasionally a small amount of atropine is combined with the morphine. Irritation of the lungs and trachea, secretion of mucus, cough, and an initial period of excitement are unanimously declared to be more frequent with ether than with chloroform. The German authorities believe that chloroform irritates the kidneys more than ether, and agree that ether, rather than chloroform, is unquestionably indicated when it becomes necessary to anesthetize old persons, young persons, very weak persons, and those suffering from heart disease. There is a marked difference of opinion as to the preferable anesthetic for brain surgery. Narcosis with the A C E mixture is universally regarded as dangerous, though it was used by Billroth as late as 1892. It seems to be a fact that the so-called ether nephritis was first described by American writers, and has never been found to exist in any considerable degree, except by Americans (see Garre). This is rather remarkable, when we compare it with other statistics in regard to ether.

Fueter and Roux report that they did not find a single instance of albuminuria among several hundred ether cases which they investigated.

Bütter discovered albumin once, after ether, in 500 cases.

Körte found it in 600 ether cases; seven contained albumin before ether, not increased after it; six had albumin after ether, which was absent before it.

Wunderlich finds six cases out of 72 etherizations in which albumin was found after and not before; six cases in 52 chloroform anesthesia, with albumin after, not before; nine cases of albuminuria, five increased, four not increased.

The writer has examined 50 cases, before and after ether. (Urine filtered and nitric acid test applied; the presence of a whitish precipitate or cloud at junction of acid and urine, visible against a dark background, was considered to be evidence of an appreciable and abnormal amount of albumin.)

Of these 50 cases, 33 did not contain albumin before ether; eight of these did not contain albumin after ether; 25 of these did contain albumin after ether. Seventeen contained albumin before ether; in 11 of these 17, albumin was increased after ether; in four it was not increased after ether; and in two it diminished after ether.

In 36 cases out of 50, ether either produced albumin, or increased that already existing.

In 25 cases which contained albumin after ether and none before, two presented a moderate amount (large trace), four a slight amount (trace), and 19 an extremely slight amount (slightest possible trace).

In 11 cases in which pre-existing albuminuria was increased after the ether, it was moderately increased in five cases, and very slightly increased in six cases.

No explanation was found in the two cases in which pre existing albuminuria was decreased considerably after ether.

Attention is called to the extremely slight amount of albumin found in the majority of the cases. No thorough examination was undertaken in regard to the duration of the albuminuria. From occasional detached observations, it seemed, as would naturally be expected, to be of very short duration. Examination for casts was not made.

The striking contrast which these figures present to those of Wunderlich and the other writers cited above, is, of course, immediately apparent. The writer realizes that these results must be confirmed by careful and more extended observations before they can be ac-

cepted as final. No fixed relation between the amount of ether and the amount of albumin was observed. In some cases where the patient was under ether an hour or more, but a very slight trace of albumin was found; and in one or two, in which the amount of ether given was small, the albumin was found in moderately large quantities. The urine examined was that passed on the night following the operation. The condition of the kidneys occasioning such an albuminuria, would probably be simply a slight congestion. In this connection, it is interesting to note the temporary albuminuria found by MacFarlane in the urine of healthy young men, after severe football games. Further investigations, it is hoped, will shed more light upon this question, and perhaps explain the ether nephritis of the early American observers on anesthesia. The results, however, would suggest a contraindication to ether in advanced renal disease, especially when accompanied by pulmonary complications.

Before leaving the subject of renal complications, it must be mentioned that Becker, in 188 cases, found acetonuria in about two-thirds; the anesthetic and the duration of anesthesia apparently did not bear any fixed relation to it. Baxer reports a case in which a diabetic patient sank steadily, and died after a short chloroform anesthesia.

The foregoing authors and statistics are all manifestly in favor of ether. The single article which the writer has been able to find which does not champion ether is that of Miculicz, mentioned above, a careful operator and a good observer; it demands closer scrutiny. Like many others, Miculicz abandoned chloroform for ether, at least partially, in 1893, as a result of Gurlt's statistics. In 1894, after less than 100 etherizations (the actual number was about 65), he abandoned ether and returned to chloroform. The mask of Juillard, to be described later, was used in administering the ether, and possibly accounts for the result obtained. Miculicz points out that anesthesia, of whatever origin, is more dangerous than had formerly been believed, and protests strongly against its indiscriminate use, when it can be avoided; especially in cases for diagnosis only, or where local anesthesia is possible, it should not be induced. He goes so far as to doubt that it is an important aid in making a diagnosis. He then mentions the undoubted fact that chloroform is very often of poor quantity and poorly given, and finally, that other conditions complicate or actually cause many cases of so-called chloroform death. He calls attention to the cyanotic redness of face and neck and the impossibility of judging the depth of the narcosis from the eyes or expression; and finally, among his 65 cases, he found three cases of collapse during ether, two cases of collapse after ether, four cases of acute bronchitis, and two cases of edema and pneumonia.

The cyanosis of face and neck, and the impossibility of seeing the eyes (which seems to be what Miculicz means), American surgeons would unquestionably attribute to the ether mask employed — a tight, hemispherical basket, covered with material impervious to air, and held down snugly over the face during the whole period of anesthesia, save for the very short period it is lifted to receive more ether. And indeed one cannot help thinking that the slight temporary collapse which occurred in three cases during the ether, and perhaps also the more serious collapse in two cases after the ether, were also due to this most undesirable method of combining $CO_2$ with ether to produce unconsciousness. Whether or not ether can produce true pneumonia, properly so-called, is a very doubtful question. Prescott believes that it cannot; and the fact that it once appeared after ether in a case of Miculicz, does not by any means prove that it was anything more than a coincidence. It is certainly possible for the fumes of ether to cause a slight bronchitis, and not only possible, but probable, when the Juillard mask is used. And, finally, until another method of producing anesthesia is tried, and upon a much larger number of patients, the overwhelming statistics of so many other trustworthy observers pointing to the undoubted greater degree of safety to life under ether than under chloroform narcosis, must be accepted as proving that ether is, as Vallas concludes, just as effective and certain in its action as chloroform, and that it is less fatal.

The suggestion which Miculicz makes in regard to careful notes to be recorded, both of the anesthesia itself, and the conduct of the patient after it, is certainly most appropriate, and will undoubtedly coincide with the wishes of most surgeons; and if an examination of the statistics leads him to think that too many deaths have been attributed to chloroform, when really arising from other causes[2] surely a similar examination of so-called ether deaths would reveal the same thing, and in at least an equal degree.

Several deaths have occurred, either during ether or shortly after it, in Boston, within the past twenty years. In every case, one or more disturbing influences have existed, in the presence of which it is not possible to say that ether has caused death. They have all been, apparently, deaths during ether, not deaths due to ether. If they emphasize anything, however, it is that ether is dangerous in all cases of operation on the trachea or larynx, particularly when there is coexisting acute inflammation of the air passages, or the immediately surrounding tissues. This is a fact which Dr. Gay of Boston has repeatedly emphasized. One of these cases, which occurred under the observation of the writer, is described in some detail in the following pages.

The writer has given ether, to primary or complete anesthesia, between 300 and 400 times. In these cases there has never been a death traceable to the ether alone. In two cases there have been alarming symptoms apparently due to the ether, one of which required immediate tracheotomy. This case was one of deep cellulities of the neck in a man who was a steady drinker. Induration and swelling of the brawny cervical tissues increased gradually for two days, and the temperature rose steadily. There was no indication of the location of the pus. The swelling finally encroached upon the esophagus, preventing the ingestion of everything except small quantities of liquids, and began to cause embarrassment of respiration. The patient was carefully etherized by the writer, the attending surgeon having resolved to make multiple incisions in the neck. Patient took the ether fairly easily, though the mucus in mouth and throat immediately began to increase. After a very short period of moderate excitement, the breathing became stertorous, and suddenly stopped — face cyanotic, pulse not affected; ether was taken off immediately, and patient pushed directly into adjacent operating-room. As respiration did not recommence, surgeon did im-

[2] See Casale, Centralblatt für Chirugie, No. 22, 1894.

mediate tracheotomy, and, the tube being in position, with a little artificial respiration, breathing began again. Patient rallied well and seemed on a fair way to recovery; but temperature rose again on third day, and he died with symptoms of septic poisoning. It is possible that if chloroform had been used, tracheotomy might not have been necessary; it is probable that the patient would have died in any event. This cannot be considered a death due directly to ether, though it compares rather closely to those cases which Miculicz calls "late collapse," and which he would cite as a form of ether death. In a similar case, chloroform would be the anesthetic of choice.

The second case was a serious operation for a presumable malignant growth near the spine. The patient, a man of forty years and of excellent habits, had some years previously contracted a double pleurisy, as a result of which, his attending physician declared, his respiration had since been more or less diaphragmatic. He took the ether easily, pulse and respiration being good, though there was a slight sighing noise at the end of each expiration; in seven minutes the anesthesia was complete; but before the end of this time, the color began to darken and the respiration became labored and almost entirely diaphragmatic. When removed to the operating-table, the color was livid, and soon became a very deep slaty blue (the heart was normal). The rate of respiration was very low, about ten to the minute, but the pulse remained fairly good. There was a considerable secretion of mucus in mouth and throat. The patient was placed in the Sims position to facilitate the operation, and in this position the breathing became still worse, and the color darker, if possible; ether removed, and upper shoulder lifted, and breathing became rather better. The operation was commenced with the understanding that if the etherizer thought the condition of patient demanded it, he should request the surgeon to discontinue. Early in the operation, it was found that the position and extent of the growth rendered relief by operative means impossible, and the operation was abandoned. With the removal of the ether, color at once improved, and was normal before patient regained consciousness. Time from beginning of anesthesia, forty minutes; amount of ether used, six ounces. Before ether, one-sixteenth of a grain of atropia by stomach. In spite of various gloomy prophesies at the time of operation, there was, as a sequel, neither vomiting, edema of lungs, bronchitis nor pneumonia; the patient never developed a symptom traceable to or explanatory of his unusual condition under ether. Whether the old pleurisy had caused adhesions of both lungs, which prevented a proper action of the lungs and oxidation of the blood, or whether the malignant growth had involved the pneumogastric, or perforated the chest wall or whether all of these conditions combined to produce the result, is impossible to decide with certainty. In external appearances, the case was undoubtedly the worst that has ever come under the writer's observation. In a similar case, the choice of anesthetic might still be open.

It is, of course, undeniable that the shock produced by etherization sometimes adds the straw necessary to turn the scale in the wrong direction. In these cases, however, it is impossible to say how much is due to the operation, how much to the hemorrhage and how much to the ether; and the result would perhaps be worse with chloroform. In any event, with the present absence of notes or statistics on these points, reliable conclusions are impossible. It may be well to recall the fact, however, that laparotomies and external urethrotomies, as well as lesser operations, may be done under cocaine, and that thus the shock of general anesthesia may be avoided in just those cases where it is particularly unwelcome.

There are certain contraindications to ether upon which all authorities agree, and which, though they do not absolutely forbid ether, make chloroform the anesthetic of choice.

(1) Operations within the mouth, and upon or close to the air-passages, particularly if there be accompanying inflammations, or conditions causing irritation of the air-passages, such as foreign bodies, tumors exerting pressure, etc.

(2) Certain conditions of the lungs, particularly acute bronchitis, asthma, double empyema.

(3) Advanced renal disease, and diabetes.

(4) Operations demanding the use of the actual or thermocautery upon or close to the face.

The third indication is sometimes omitted; but the writer is convinced that it is real enough to be insisted upon with equal emphasis with the others.

Beyond the above, there are no considerable contraindications to the use of ether as an anesthetic.

*(To be continued.)*

## THE EDUCATIONAL ASPECTS OF PHYSICAL TRAINING.[1]

BY W. A. BROOKS, JR., M.D.

MANY of the best minds of the intellectual world are devoting their energies to promoting the advancement of educational demands. It might well be asked, what bearing has this upon the subject of physical training? The answer to that question is embodied in another: What is going to determine the limit of educational demands? Obviously they are limited by the ability of the individual to grasp and to understand, and the amount of time which can be devoted to study. Ability is a personal equation. Time is limited by the duration of life.

What is it which enables a man to do his work properly if it is not physical condition? And what is it, barring accidents, which determines whether a man lives to be seventy or dies at forty, if it is not his surroundings and the care which he takes of himself? The standard of higher education can be raised until the limit of mental and physical endurance is reached. As a greater demand is made, it can only be met by carrying with it a provision for the building up of endurance.

But as yet, physical training, the only means of building up endurance, has never received more than a passing notice from the majority of the learned men who stand at the head of our institutions, and who map out and direct the work of those who are under their immediate control. While they carefully direct mental exercises, they utterly ignore physical demands. They compel students to come up to a certain intellectual standard, taking it for granted that they are in a sufficiently good physical condition and know how to keep so. To be sure they may provide a gymnasium and instructors in physical culture, but whether the in-

[1] Read before the Boston Society for Medical Improvement, March 18, 1895.

dividual takes advantage of these opportunities concerns them little and interests them less.

At the expense of the government a chosen few are educated to fill positions in the army and navy. The government does not propose to have its money wasted, and so in order that the students at these institutions may be physically able to do their work, both before and after graduation, there is a fixed standard of physical condition and an ample provision made for physical training.

At some other institutions of learning, the students upon entering are required to bring a certificate of good health. After entering there are generally no further requirements either as to conditlon or training, except that by some means or other they must be able to do the work given them. The institutions are generally in need of funds. It would never do to demand too perfect an individual. On the standard of health too many might be debarred.

Granting that physical training is an important adjunct to mental work, the question arises, to whom must students of health turn for instruction in this branch. Obviously the men who should be best fitted to direct such work are the men who are devoting their lives to the welfare of mankind — the medical profession. But while they devote years of study to pathological conditions and their relief, very few hours are devoted to the consideration of the healthy body and how to keep it so.

It is not that its importance is underestimated, but rather because, through tradition, physical training in the minds of most physicians is associated with athletes and athletic sports.

Physical training has not yet acquired the dignity of being incorporated in the curriculum of medical study, but is supposed to lie within the province of the gymnasium instructor or the professional athlete. And yet it is to the physician that the man worn out with business cares, the student nervously exhausted, the parent anxious that his children should grow up strong and healthy, all come and demand relief and advice, for he is supposed to as thoroughly understand the laws of health as he does the symptoms and treatment of disease. And he should. Why then, is not more attention paid to the subject of physical training in our medical schools? Is it not because a physician's reputation is made not from his attempts to keep his patients in good health, but from his success in treating them after they are ill?

Unless a physician has of his own accord looked into the subject and carefully considered it, he is apt to do as much harm as good when he recommends exercise to a patient. For exercise, to the average practitioner, simply means something, anything, which calls for muscular exertion. It is not necessary that a graduate in medicine should be a skilled gymnast or a competent instructor in gymnastics, but he most certainly should have some idea of the amount of exercise which an individual needs, the best means of his obtaining it, and the proper manner of beginning it.

I take the liberty, therefore, of presenting to you this evening, a few ideas upon the subject of physical training.

The healthy, vigorous boys or girls need no special instruction in this branch. Their natural instinct is is to romp, to enjoy life and to join in various sports and pastimes. They simply need a word of caution against too severe or too prolonged exertion, and a few directions how to guard against getting chilled or overheated.

But it is different with the children of delicate physique. Their natural instinct is to stay within doors. The pleasantest day seldom tempts them into the open air; and even when they do go, the inherent sense of their own weakness keeps them from joining in the sports of their playmates. Their parents generally help them in this tendency. Because they are known to be delicate they are kept from the very things which might enable them to grow strong. The majority of them could be greatly helped by being made to join in certain games and forced to follow a systematic course of training. Through the lack of systematic and regular exercise, many a child has been prevented from growing strong and healthy.

As most of what I have to say can be applied to both sexes, I shall for the sake of simplicity, confine my remarks to the male sex.

The line between health and disease is never widely separated, but the change from one to the other is in the inverse ratio, for it is much easier to lose one's health than it is to regain it. There is no system of training which can prevent a child from becoming ill, but a systematic life will strengthen a child's power of resistance. You cannot by exercise, remove from a child his inherited weakness; but you can build him up and give him greater power, so as to establish a balance of health in his favor. According to the age and natural strength of the child you should map out the line of his early life. If he is strong, see that he does not develop one portion of his body at the expense of another. If his chest is weak, encourage him in those games which call for lung power and good chest muscles. Have him taught to stand and sit properly and to use his lungs voluntarily, by breathing slowly and deeply.

You cannot apply one system to all, for each individual body has its own peculiar characteristics.

When the boy becomes a youth, he becomes more of a creature of impulse. If he enjoys exercise he takes it. If he is fonder of his studies he abandons it. The one needs restraint, the other encouragement. An excess in either direction leads to permanent injury: either to too great muscular development or to a loss of physical condition.

Accordingly, when the youth takes up his life's work, he brings into it either the energy of good health or the millstone of an impaired constitution.

Proper food, good air, sufficient rest and exercise, are the demands for physical training.

The laws of physiology tell a man when he must eat, and what the character of his food must be. It is not within the means of every man to always get what is best for him, but it is within his power to learn how to breathe properly and to take a sufficient amount of exercise.

The natural tendency of most men is to breathe superficially; for as breathing is largely an involuntary action, it is only when the will power is invoked, that men slowly and thoroughly inflate their lungs. By muscular exertion the same object can be attained. Accordingly it becomes necessary that, during exercise, a proper attention should be paid to the manner of breathing. When you advise a man to exercise, call his attention to the value of his holding himself erect with chin, chest and toes in nearly the same line as possible; with shoulders well settled, not falling

forward, and with the mouth closed. Tell him to breathe as slowly and deeply as possible, but to avoid straining his lungs by too full or too forcible inspiration.

In regard to the amount of exercise which he should take, that must depend upon his strength. The question of how his exercise is to be taken, largely depends upon his occupation, and the amount of time which he can devote to it.

Certain points must be remembered. He should begin gently, increase gradually, exercise with regularity, and always avoid too excessive or too prolonged exertion.

The men who most need exercise are those whose occupations keep them within doors, and who labor especially with their brains. This is the class which finds difficulty in getting what they need, for their time is limited and their work never finished. They can, however, always take a sufficient amount, if they feel so disposed. For instance, if a man lives in town, he can take a fifteen or twenty minutes walk to and from his business. Upon rising in the morning he can devote the same length of time to exercising in his room, either with chest-weights or dumb-bells, or by going through exercises and motions without any apparatus. These exercises he can repeat at night, either just before dinner or before retiring. It is surprising how much benefit can be obtained from two short walks in the open air and a half-hour's exercise during each day.

If he goes to a gymnasium, he should thoroughly understand how to begin his exercise. The latter part of the afternoon is the best time. He should wear the proper amount of clothing, and do his work quickly and systematically. The work at first should be light, and never carried to the point of fatigue. He can begin with the chest-weights. With a light weight in each hand he should go through the various movements, ten times for the first day is sufficient. Then a few moments with the wooden dumb-bells, a dip or two between the slanting parallel bars, a short exercise of throwing the so-called medicine ball (a large leather ball stuffed with hair or tow), ending up with a slow run around the track, for a distance equal to a quarter of a mile. This will be found to be enough and not too much for most beginners, and there will be no resulting stiffness or soreness the next day.

After this exercise he should take a moderately cool bath, a brisk rub, and then dress slowly. On each succeeding day he should increase by one the number of times which he performs each movement, and perhaps add a lap to the length of his run.

By the end of three weeks he is doing each movement twenty-five or thirty times, he moves more quickly, and already the effect is seen and appreciated. He is now in a condition to bring more variety into his work, and can either join one of the regular classes or with a friend indulge in a game of hand-ball, court-tennis or rackets. He has not made the mistake of beginning his exercise too violently, and there is no reason why he should ever have felt the slightest lameness.

A man who has once got himself into fairly good physical condition is ready, whenever the opportunity offers, to indulge in any of the out-door sports. He can row, play tennis or golf, or enjoy a bicycle ride. There is one chief objection to the bicycle. As yet I have not seen what I consider a proper saddle. Nature intends when we are in a sitting position that the tuberosities of the ischii should receive the weight. The modern bicycle saddle allows the greater part of the weight to fall upon the perineum. This is especially disadvantageous for lady riders. The ease with which a bicycle can be driven tempts one to ride too fast and too recklessly. Steep hills should be avoided as they call for too great a strain upon the heart.

Whatever the form in which exercise is taken, over-exertion should always be avoided. But over-exertion should not be confounded with the natural fatigue which one feels after a long walk, row or ride. That is but the natural result of a well-regulated and healthy exercise, and it demands but one treatment, namely, rest.

Rest is one of the important parts of physical training. The hard-working man, who can or will take his hour's rest at noon, does better and more satisfactory work during the remainder of the day. The man who gets his seven or eight hours of sleep during the night, wakes up ready and eager for his day's work to begin.

But in the face of all these facts and suggestions, one is constantly confronted by the statement that there is Mr. "So and So," who is perfectly healthy, and yet he has never taken any exercise in his life. All that can be said in reply is that a man who has been blessed with a good constitution can apparently abuse it with impunity. The effect of his life, however, can generally be seen in the constitution of his children.

Looking at physical training from a selfish standpoint, it does not always appear to be a necessity to an individual blessed by nature with a good constitution; but looking at it from the stand-point for the welfare of mankind, it becomes not only a necessity, but also an obligation.

I have purposely omitted the consideration of the practical application of physical training to the students in our schools and colleges, for I consider it of too great importance to be hurriedly passed over in a general paper of this kind.

In conclusion, allow me to add that while I know that physical training cannot do everything for the human body, I do believe that it will greatly assist in youth the acquirement of health, and later in life will so aid the preservation of strength as to give greater power for the postponement of the inevitable end, which according to the laws of nature must sooner or later come to us all.

## Clinical Department.

### A REPORT OF CASES IN WHICH THERE WAS OBLITERATION OF THE ANTERIOR TRANSVERSE ARCH OF THE FOOT.[1]

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

ONE year ago the writer presented a paper to the Society for Medical Observation, upon the subject of the anterior transverse arch of the foot and the relation of the obliteration of this arch to certain conditions and symptoms which had previously received very little if any attention. Particular emphasis was put upon its relation to that condition which is known

[1] Read before the Boston Society for Medical Improvement, March 18, 1895.

by the name of metatarsalgia. This paper was afterwards presented at the meeting of the American Orthopedic Association, which was held in Washington in May of last year, and was published in the *Boston Medical and Surgical Journal*, September 6, 1894.

The presence of this arch was proven anatomically by a series of dissections and frozen sections, which were made through the kindness of Professor Dwight of the Harvard Medical School, and clinically by the study of impressions of normal and abnormal feet.

The variations and changes which occur in the transverse arch and the symptoms which are associated with these changes were described at some length, but because of the limited number of cases which had been studied and from which the deductions were made, the conclusions were in part theoretical. It is partly for this latter reason, and also with the desire to give added emphasis to the opinions which were offered at that time that this series of cases is reported.

In all there are 14 cases, most of which have been seen by the writer during the past year. In each of the cases the anterior arch was obliterated, and the symptoms were entirely relieved (and that almost immediately) by restoring the normal relations of the bones which form this arch. Four of the cases were men, while the remaining ten were women. In eight of the cases the anterior arch alone was affected, while in the other six there was flattening of the longitudinal arch as well. In ten cases the chief symptom was pain referred to the anterior portion of the foot. In about half of this number the pain was of the sharp paroxysmal type, while in the remainder it was less acute, but as a rule more constant. The paroxysmal pain was usually developed by walking or standing, and was at times so severe as to prevent locomotion. In one case the pain was worse when the foot was at rest, relief being obtained by motion. The seat of the pain varied considerably; but in the majority of the cases it was located about the head of the second or third metatarsal bones. In two cases it was referred to the toe; in one to the extreme end of the toe, at the corner of the nail. In but one case was the pain assigned to the head of the fourth metatarsal bone.

In six of the cases a well-marked callus had formed in the middle of the ball of the foot, due to the increased pressure at that point; and it was chiefly because of the difficulty in walking due to the sensitiveness of this callus that these patients desired treatment.

In two cases the foot had become so wide from the giving way of this anterior arch that the pressure of the shoe against the first and fifth metatarso-phalangeal articulations had caused marked redness and sensitiveness at these points.

The age of the patients has no special significance, other than showing that it is essentially a disease of adult life. The youngest patient was about twenty years of age, while the oldest was nearly seventy.

The treatment of this condition has been most satisfactory; and the relief that is obtained, at times almost instantaneous, has been as much of a surprise to the physician as to the patient. The treatment naturally consists in restoring the bones to their normal relations, that is, the re-formation of the arch. This has been accomplished in several ways; the simplest method, and that which has been adequate in the majority of the cases, is the use of a felt pad that is incorporated into a leather inner sole and which can easily be slipped in or out of the shoe. The position of the pad varies but little, and it should be placed under the second and third metatarsal bones just back of their articulation with the phalanges. The thickness of the pad, however, does vary; and it may have to be changed several times before the correct thickness is determined. A very thin piece of felt should be used at first, to which more can be added from time to time if necessary. In placing the pad care should be taken to avoid pressure directly upon the heads of the metatarsal bones, as the discomfort in walking with the pad in this position is very great; and if the callus is present, the pain will be aggravated.

This simple procedure has proved to be enough in the majority of the cases; the pain is relieved and the callus, from the change in the point of pressure, rapidly disappears.

Occasionally some lateral support is needed, particularly in the cases in which there is irritation or sensitiveness about the great or small toe joint. For this purpose a circular bandage applied very tightly so that the pressure comes wholly behind these joints has given the greatest satisfaction. At times the pad and bandage have been used together.

Besides this mechanical treatment special attention should be given to the muscular development of the part affected. Exercises should be given to strengthen practically all of the muscles of the feet, more special attention being paid to those which have to do with the maintenance of the tranverse arch. Beside this, stimulating bathing and massage are of value, not so much with reference to the immediate as to the permanent relief of the condition.

If with the obliteration of the tranverse arch the longitudinal arch also has given way, this should be corrected, the plate being attached to the same inner sole with the anterior pad.

The diagnosis, to briefly recapitulate from the paper of a year ago, is to be made from the subjective symptoms; pain in the anterior portion of the foot, with the callus under the centre of the ball of the foot; from the tracings which are more or less characteristic; and from the widening of the anterior portion of the foot.

## Medical Progress.

### RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

(Concluded from No. 22, p. 541.)

#### LAMINECTOMY FOR THE RELIEF OF PARAPLEGIA.

J. A. Wyeth,[12] reports six cases, all of which recovered from the operation. The technique he prefers is a free incision just over the spines, division of the attachments close to the bones with dull scissors or the elevator, strong retraction, and iodoform-gauze packing to control and arrest bleeding. When well exposed, the laminæ are gnawed away in bits first by the round rongeur, and when an opening is effected, by the more rapid cutting fenestrated rongeur. When exposed in full length of the injured region, and all bleeding stopped, the dura is carefully punctured with a scalpel, and as the first few drops of

[12] Annals of Surgery, August, 1894.

cerebro-spinal fluid escape, the grooved director is inserted and the dura split open in the middle line. This membrane should be closed by a careful continuous catgut suture. The muscles are sutured by subcutaneous catgut sutures, and the skin incision closed by silkworm, leaving a wick of iodoform gauze running from the dura out of the lower angle of the wound for drainage. Dry dressing over all. Each of his cases healed without suppuration. The outflow of cerebro-spinal fluid continued from two to four days in all but one case, in which it leaked out for several weeks. From his experience he concludes:

(1) The operation offers no great difficulty or danger.

(2) Paraplegia justifies exploration, and this should be done early in all cases where no improvement is marked. The degenerative changes, which occur from compression which has not divided the cord, add to the urgency of early interference.

### SACRAL OPERATION TECHNIQUE.

Borelius has by clinical experience formulated the conclusion that the Rydygier method requires modification on account of its interference with the innervation of the bladder.[16] Incidentally he found it difficult to remove the upper part of the vagina when involved by carcinomatous infiltration by extension from the uterus. He devised a modified operation — a posterior sacral operation for exposure and resection of high-seated rectal growths, and an anterior sacral or para-rectal operation for exposure of the female genital organs.

The posterior operation consists of a skin incision in the median line from the middle of the sacrum to the tip of the coccyx and obliquely outward, to the right, along the border of the gluteus maximus muscle. The tendinous origin of this muscle is divided, and this skin-muscle flap reflected to the right. The left side of the sacrum is now exposed, and with a broad chisel is cut through obliquely from the fourth sacral foramen on the right to the third sacral foramen on the left. The right border of the coccyx and this bony flap are reflected to the left with the whole anal area. Then the rectal resection and suture is made in the usual way. The wound cavity is tamponed with gauze. The bone flap is replaced and fastened by a few sutures through the periosteum. The upper part of the skin wound is sutured; the lower, along the edge of the gluteus, is left open for the end of the gauze tampon. By this method the paralysis of the bladder which occurred when the third and fourth sacral nerves on both sides were cut was avoided. In three patients the Borelius method resulted in immediate union of the bone flap. In no case did paralysis of the sphincter ani or bladder occur. The great ligaments of the sacrum are preserved on both sides. In two cases a fecal fistula remained.

The anterior sacral or para-sacral operation consists of a skin incision from a point in the median line about two centimetres above the sacro-coccygeal articulation, forward and somewhat to the left, past the tip of the coccyx, and across the ischio-rectal fossa to a point three to four centimetres anterior to the anterior margin of the anus; then towards the median line near the posterior vaginal commissure. The left border of the coccyx is exposed. The sacro-coccygeal joint is cut or chiselled through. The anterior part of the incision is deepened into the ischio-rectal fossa till the flap with the coccyx and anus can be reflected to the right. The vagina is now separated from the rectum and opened. It is divided horizontally below the tumor which with the uterus is freed from below upward in the usual way, and removed. The peritoneum is sutured and the remaining portion of the vagina. The wound cavity is tamponed (iodoform gauze), and the coccyx sutured in position; the tampon is brought out behind for drainage, and the rest of the wound closed by deep and superficial sutures.

The above method has been used in four cases. The coccyx has always united. The preservation of the coccyx preserves the muscular attachment between it and the anus in which this method is superior to the latest Hochenegg method. There has been no death.

A ureter was once included in a suture, but it was noticed and freed. Borelius, on account of the sacral nerves, would never resect the sacrum higher than the lower border of the third foramen on one side and the fourth on the other.

[16] Centbl. f. Chir., 1895, Bd. xxii, 57.

### INFLUENCE OF CICATRIX IN THE PRODUCTION OF ATROPHY, AND ITS UTILITY IN SURGERY.

In an opening address to the Nottingham Medico-Chirurgical Society, T. Pridgin Teale,[17] reiterates a proposition that he made some years ago, which is of interest. It is, "that tissues which depend for their nutrition upon vessels passing through a cicatrix have a tendency to waste, a tendency which often does not become evident until some time has elapsed from the completion of cicatrization, and may continue for months, or even years, until in some instances the dependent tissue fades away completely."

He illustrates this proposition by a number of cases, and speaks of the influences of cicatrices upon nevi, thyroids and prostates. It is a suggestive address.

### THE TREATMENT OF IMPACTED EXTRA-CAPSULAR FRACTURE OF THE NECK OF THE FEMUR.

F. A. Southam,[18] in an interesting article, states that the treatment usually adopted in cases of impacted extra-capsular fracture of the neck of the femur consists in simply keeping the leg at rest, without making any attempt to overcome the characteristic deformity, namely, the shortening and eversion of the limb, always present in a greater or less degree. As might be expected, the result in most cases is very unsatisfactory, for the leg remains permanently more or less shortened and everted.

With a view to preventing, if possible, this result in a case recently under his care in the Manchester Royal Infirmary, the impaction was at once broken down under anesthesia, and, the eversion and shortening by this means having been overcome, the fracture was then treated in the ordinary way, extension being maintained by means of a weight attached to the leg, a long straight splint being applied to the outside of the limb. The consequence was that the fracture readily united with the limb in the corrected position, no deformity remaining.

The satisfactory result obtained by Southam by breaking down the impaction, would lead him to again adopt this treatment under similar circumstances, provided that the patient was of good constitution and not advanced in years.

[17] Lancet, October 27, 1894.
[18] Ibid., November 17, 1894.

STERILIZATION OF CATGUT BY BOILING IN OLIVE OIL.

B. L. Eastman,[19] of Kansas, U. S. A., has tested the above method, and states that as the result of his investigation catgut can be rendered sterile by heating in olive oil at 212° F. for three hours. The method is cheap, reliable and rapid. The quality of the gut is not impaired. For some reason the oil thus boiled becomes turbid, but is clear again after two or three days. The boiling is done over a water bath. The gut is wound on a glass spool which is placed in a bottle containing the oil. The bottle is sealed and placed in a water bath, which is then covered. It is exposed to the temperature of the boiling water in this way for three hours. The boiling point of the oil is stated as about 400° F.

THE USE OF SULPHUR IN SURGERY.

Mr. W. Arbuthot Lane[20] summarizes a year's experience, and comes to the following conclusions: (1) Neither sulphur nor the products generated by its decomposition acted prejudicially upon the life or health of the individual into whose body it was introduced. (2) If placed in contact with recently incised healthy tissues, twenty-four hours sufficed to render the parts sterile as far as organisms are concerned. (3) If the recently incised or scraped surface were but poorly supplied with blood, as, for example, the brawny edge of a carbuncle or a spreading gangrene of a limb, sulphur might be left in contact with the tissues advantageously for a considerably longer period. This also applies to a granulating surface. (4) The entry of other organisms into a tuberculous cavity did not influence the action of the drug, since it destroyed all organisms, whether free in the cavity or intruding into the surrounding living tissues forming its wall.

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[19] Annals of Surgery, 1894, vol. xx, 56.

[20] Lancet, December 1, 1894, p. 1280.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

Regular Meeting, Monday, March 18, 1895, Dr. C. J. Blake in the chair.

Dr. W. A. Brooks, Jr., read a paper on

THE EDUCATIONAL ASPECTS OF PHYSICAL TRAINING.[1]

Dr. E. N. Hartwell: I have been very much interested in Dr. Brooks's paper. He has pointed out some things with regard to what seem to me the privileges of the medical profession that may help the cause of physical training very much. It is to the physicians rather than the school committees and legislatures, it seems to me, that we should look to instruct the public as to their duties in this matter of physical training. I should not include under the term physical training quite so much as I understand Dr. Brooks to do. It seems to me that many of the procedures of which he speaks are only indirectly connected with physical training in its proper sense and would be more properly classed under the head which the "Index Medicus" terms personal hygiene or individual hygiene. I should not quarrel with him on that ground. It does seem to me though that the conception of physical training which has been borne in upon me is sufficiently inclusive. I should prefer to define physical training as the more or less systematized employment of muscular exercise for general or special ends. If we appreciate what that includes, we see that physical training enters not only into what may be called the two great departments of physical education, athletics and gymnastics, but also into all technical training, like the training of the hand, training of the body in the military drill, training of the hand in violin playing, writing, etc., the use of the vocal organs and so on. The teachers and exponents of such specialties might well understand the physical training element in them and the means by which they can best secure their particular ends.

It seems to me rather desirable, in the interests of the more formal physical training which Dr. Brooks especially disclaims the intention of covering by his paper, that those who are most especially interested in

[1] See page 562 of the Journal.

having the legitimate claims of physical training recognized and its spurious claims disallowed — I mean those of us who are called upon to teach and apply the principles of physical training in general education — should strive to have it kept separate in thought and practice from particular forms like vocal culture, military drill, Sloyd, and the like. It would be hard to estimate the loss which physical training has undergone in this community from the fact that the school committee after it established physical training in the early sixties combined it with vocal culture, and placed it under the control of a man who was a very successful voice-trainer, but not in any proper sense a physical educator. The department fell to pieces, expeditiously and naturally. We have not yet recovered from the ill effects of that ill-advised experiment, it seems to me.

Again, it is better to confine it in this way, because then those who are the practitioners of it, the drill-sergeants and leaders of companies and regiments, can be the more readily and distinctly kept within the limits of their special and particular province. It is not the province of gymnasts properly speaking, Swedish or other, laymen or laywomen, to practise medicine in the way that many of them strive to undertake it now. To a certain extent I think that is due to the fact that their field has not been sufficiently mapped out and control over it assumed by the medical profession.

So far as I can learn, in the earliest expression of an interest in physical education made by a Bostonian the term was used in a very broad sense, broader than I should say that Dr. Brooks would be willing to attribute to it. The expression occurs in "A Discourse on Cold and Warm Bathing," by Dr. J. G. Coffin, published in 1818. "Let us remember," he says, "that the great purposes of physical education are to superintend the infant body, to favour its development and progress in childhood and youth, till it is completed in the man,— and then to preserve in health this complicated machine fitted and prepared for all the duties, labours and enjoyments of the animal, intellectual, and moral life." In the *Boston Medical Intelligencer*, which was devoted expressly to "The Cause of Physical Education and the Means of Preventing and Curing Disease," and belonged to Dr. Coffin, the nature of the baby's bath, whether or not pins should be used in the baby's shifts and such matters were discussed by Dr. Coffin under the head of physical education. His journal started in 1826, I think. In two or three years it was combined with another medical journal, resulting in the establishment of the *Boston Medical and Surgical Journal*, by which title it has been known ever since.

Some of the colleges have a professorship of Hygiene and Physical Education. Dr. E. Hitchcock has served Amherst in that capacity since 1860. He has charge of the gymnasium and lectures to the Freshman class upon the general rules of right living. This is supplemented later on by lessons in physiology and hygiene; and practical and pointed talks in regard to various departments of life, including the married and unmarried states, are given to the students in the Senior year. Since the establishment of departments of physical training (so-called) in many of the colleges under the charge of physicians, customs similar to the Amherst custom have doubtless increased. For instance at the Leland Stanford University, the head of this department is a regularly constituted member of the faculty, and has charge of a rather enlarged department of general hygiene. But so far as I know, the kind of course which Dr. Brooks favors in medical schools has not been provided in that class of institutions. I think we have but one hygienic institute worthy of the name connected with a medical school. It is in Philadelphia, and it is devoted to general hygiene. A thorough-going and genuine course in school hygiene or in personal hygiene is nowhere provided, I believe. Indeed, I do not know that there is a professorship of personal hygiene in any of the European medical schools.

The health of the school population seems to me to be worth considering from Dr. Brooks's point of view. According to Dr. Harris, the United States Commissioner of Education, in 1890 about 23.5 per cent. of the total population of the United States was found in schools of some sort; 96.5 per cent. of the school population was in elementary schools, only 2.5 per cent. was in secondary schools, and less than one per cent. was in institutions of superior instruction, including professional schools, colleges and the universities. Now to this great mass of children who never reach the secondary schools, who terminate their school life before established adolescence has set in, we, as believers in preventive medicine and general hygiene, ought to pay more attention than we do, it seems to me.

Not many years ago after some wrestling with certain legal questions, an instructor of hygiene was appointed for the Boston schools. It was the opinion of the law officers of the city that a sanitary inspector could not be employed except by the City Board of Health. It seems to me that the experiment was a very instructive one. The duties of the instructor in hygiene were laid down in a way; at the same time they were quite mixed and indefinite. He was practically tied hand and foot as to power and initiative. The result was that there arose a gust of the odium theologicum, and the office was abolished.

Owing to the impression made by an extensive epidemic of diphtheria, Dr. Durgin, President of the Board of Health, has been enabled to appoint fifty medical inspectors to visit the schools daily. It seems to me that this is a move in the right direction. No one man picked out of the ranks of the medical profession can oversee and attend to the multifarious and diverse duties of a medical, sanitary and hygienic Poobah. We have in the first place this enormous mass of population which constitutes the largest contingent of the industrial army of the United States. Schooling is certainly sedentary in its nature, and it lasts so many years that you may call it a sedentary occupation. The State owes it to itself that this population shall not constitute a menace to the public health. If the public health is to be properly guarded, we should have public health officers rather than State police to see that school-house sites are well chosen, that drainage is all right, that heating, ventilating and other apparatus is of a proper sort, and properly used. No ordinary physician is competent, as a rule, to pass upon questions of sanitary engineering which come up in planning, erection and furnishing of school-houses; hence, I think, that public health officers and sanitary and architectural experts have their duties to perform in the matter of preserving the health of the children after they are in

the schools. Even then there is room for a special inspector or director of school hygiene — call him what you choose — whose business it should be to see that the teachers carry out such reasonable rules as may be laid down by the public health officers, sanitary experts and school officials acting together; because the practices and procedures of the school-room which affect the eyes, ears, brains and muscles of the pupils, constitute a special branch of school-hygiene and should be recognized as such. These three classes of experts working together could regulate the gymnastics, the plays, the games and the school-life of the children in the interest of public health and their own health, and in the interest of school-work at the same time.

Opportunities for the thorough training of such experts are not easy to find. I do not think they are found anywhere in the United States at present.

I have had the curiosity this afternoon to look through the "Zeitschrift für Schulgesundheitspflege" to see how far this matter of hygiene and school hygiene plays a part in the training of European teachers, and to see how far, if at all, the universities have taken measures to provide genuine and adequate facilities for instruction in this branch. I have been rather surprised to find that a good deal has been undertaken in this direction. In 1888, in the hygienic institute in Berlin the head of which is Dr. Koch, two courses were given in hygiene, one for government officials and another for school officers; and Dr. Koch, Dr. Esmarch and others took part in the instruction given in that year, and the courses have been pretty regularly repeated since then, I think. The university of Bern, in Switzerland, instituted a special extraordinary professorship in school hygiene alone in 1890. The Hygienic Institute at Naples, a government affair, in 1889 was resorted to by 34 physicians, 8 apothecaries and 4 engineers. A notable requirement regarding the study of hygiene is that which was ordained in Sweden in 1889, to the effect that after April, 1890, all aspirants for a licentiate's diploma, with which most Swedish medical men are content, would be required to take a two months' course at the Caroline Institute at Stockholm. It became an obligatory part of the State examination requisite to the practice of medicine, and to make room for it the clinical courses on the diseases of the nervous system and the eye were cut down from eight to six months.

Within the last few years much activity has been shown in improving the opportunities for teaching teachers the principles of hygiene in general, and of school hygiene in particular, in various parts of Europe. For instance, in Austria in 1891 and 1892 instruction in hygiene, in the training-schools for teachers, was authoritatively and definitely put in the hands of educated physicians, instead of being left to the ordinary teachers. These are some of the subjects included in the line of study laid down for normal pupils: air, earth, water, food, clothing, explanation of the structure and functions of the human and animal body, infectious diseases, disinfection, first aid to the injured. The following special topics indicate the meaning given to school hygiene: the school-house and the school-room, school-desk and school-table, faulty methods of sitting, the duration of instruction, intermissions, school games, various school diseases, their causes and remedies. In 1893 the Prussian Minister of Education issued certain regulations with regard to the conduct of courses in hygiene for public officials of various sorts, whose duties would be better performed if they were well informed in that subject; these regulations relate to the course given in the hygienic institutions of the universities of Berlin, Kiel, Königsberg and Marburg. In Bern, Giersen and Leipsig university courses were delivered, and in other places lectures were given, to the candidates for teachers' positions in 1893.

It seems to me vain to look for very much help at present from the purely philosophical faculties of our universities and the colleges. Such faculties have been so taken up and overcome by the rank growth of certain branches of physical training, notably in the athletic field that they are rather paralyzed even were they quick and willing to see what should and might be done both in the way of providing scientific instruction in the different branches of hygiene of which we have spoken and towards regulating and improving the departments of athletics and of gymnastics. It would seem that our humanists and classicists have scarcely apprehended the old Roman notion which underlaid the custom of placing S.V.B.E. "if you are well, it is well" at the beginning of every letter. If those who control our colleges would take to heart the meaning of the saying of Seneca, "Non est vivere, sed valere vita," we might look to them in a way we may not now to help forward this cause of personal hygiene and physical training. As one generation after another of athletes leaves college and enters adult life, they should be clear-sighted enough to see how much needs to be done and how much can be done for the health and strength of the rising generation. Their help is needed. I welcome Dr. Brooks's contribution very much because of his standing as an athlete. Hitherto those who have been most interested in school hygiene and in the work of the directors of physical training in such colleges as have attempted to organize such departments have not received much sympathy or aid from athletes as a class. I have thought sometimes they have not received nearly all the help they were entitled to from those who devote themselves so vigorously to boating and baseball and football. I venture to hope that Dr. Brooks will have many followers.

DR. H. P. BOWDITCH: Dr. Brooks in his paper has emphasized particularly one side of the question of physical training, namely, the importance of the training of the individual, which Dr. Hartwell calls the question of personal hygiene, and there is no doubt that every one who has listened to him has felt convinced that a course of exercises such as he has described would be a very desirable thing for almost all of us, and yet I should like to ask whether he does not think that sometimes there are cases in which those forms of gymnastic training are objectionable on account of the lack of interest which the individual takes in them. I have had persons say to me: "I do not doubt I should be better, in a way, for going to the gymnasium and taking physical exercise, but it is so repulsive, I bore myself so for the sake of the exercise, that I find it very difficult to overcome that feeling." In such a case a brisk walk in the open air is perhaps quite as good for the general health.

Another question is: How are we going to limit the amount of exercise which may be profitably taken? Is it possible in any way to lay down a rule for different people to follow? It seems to me that we all of

us have got to be more or less a law unto ourselves in that respect. A certain amount of development of the physique is, of course, essential to every well-regulated body. There is no question that the mind works better in a vigorous body. The close relation of the development of the physique and the development of the mind has been proved in many ways, perhaps in no way more clearly than by Dr. Porter's investigations in the St. Louis schools, where he showed clearly that the children best developed physically were also more advanced in their school work. There was a parallelism in the mental and physical development evident in that way. But at the same time what is a reasonable development for one person would be an excessive development for another, and the question of early habit becomes very important in this respect. I should like to ask Dr. Brooks if he does not feel it is quite possible in early youth to devote so much time to athletic training that much of the subsequent life has to be spent in keeping up the physique one has built, whereas the general health and capacity for doing work might be as good with less physical development, and this large physique secured by training may be a source, not of weakness, but of loss of time which could be better spent in some other way.

There is another subdivision of the subject which has attracted my attention perhaps more than any other, and that is the duties of those who have charge of universities and schools with regard to securing proper training and development of the classes which come under their control. Here certain rules must be established. The children are in classes. Certain definite rules must be laid down, and the responsibility becomes very great upon the officers of instruction. They cannot afford to neglect the physical training of their pupils, and the question is, What general rules can be adopted to enable them to be developed in the proper manner. And here it seems to me the first thing to be borne in mind is that in the healthy child the opportunity for exercise is about all he needs. If you give him a chance to exercise his body, he will exercise it as much as is good for him, and he only needs to be restrained. This fact has been lost sight of in a nation which has set us an example in so many branches of education, namely, the German. I have spent a number of years in Germany and have had occasion to observe the school children in that country; and if you examine the children between eight and twelve, they are very far from presenting that degree of physical development which the children of a corresponding age have in this country or in England. It has seemed to me that, in consequence of the demands of the school curriculum, most of the German children have very little vitality left after those demands are satisfied. When the school hours are over they wander home listlessly with none of that freedom and desire to exercise their bodies which is so conspicuous in school children let out from school with us. This impressed me so much that I spoke of it to a German friend, and asked him whether I was wrong in thinking that the curriculum made too much demand upon the German school children. He said: "No; you are right, I have young children of my own now, and I am looking round for a school where they teach just as little as possible." When I hear the German schools lauded and held up for examples for us to follow, I say to myself: There is no question that these schools have carried book-learning to a much greater extent than we have: a German child at fourteen knows a great deal more that is contained in books than our children do, but he has lost something which our children have — that vigor of physique which comes from the opportunity to exercise, and furthermore with it has come a capacity for applying knowledge, I think, in a way which the German child does not possess. A German well-trained school boy will know a great deal more that his books have told him, but will not compare with the American school boy in power to apply his knowledge in unforeseen circumstances. I think that knowledge of life in the child of fourteen is vastly greater in the case of the American child; and this is largely due in my opinion to the fact that our school-children's brains are not overtaxed. No doubt they might do more than they do, but we must beware of pushing the requirements of the preparatory schools too far. The Germans are becoming conscious of this defect themselves, for the opinion of my German friend was not an isolated one; and now it is not an uncommon thing to see the German school children marched out twice a week in the afternoon to a field in the neighborhood of the city where they live and allowed several hours for play, but all is done as part of the school curriculum. They do not know how to play. It is rather pitiable to see the little children take off their eyeglasses and wipe them and wonder what they shall do next. We can learn a lesson of how not to do it, I think, from our German friends.

When we come to the higher schools and universities, it seems to me that there we should take for our guide the fundamental fact that the training of the body is just as important and should be placed upon the same basis as the training of the mind. If we recognize as part of the university education the proper training of the body, the teacher in that department should be a member of the faculty, should have his work recognized as part of the curriculum, and should be able to encourage pupils to come to him with the idea that their attendance upon his instruction will be regarded just as much to their credit as time spent with any other instructor in the university. It might not be possible to shape a series of required courses and electives and honors in gymnastics as in mathematics and the classics; but something of that sort should be attempted. There is no question that if a boy who comes to college with a poor physique, perhaps with some defect in his physical development, goes through college and by strict attention to the rules laid down by his teacher in gymnastics develops into a strong man, he deserves credit for the good qualities he shows just as much as the boy who obtains honors in mathematics. He must show fine moral traits, determination, self-sacrifice and persistency in accomplishing his object to attain this. If we get physical training put on that basis we shall be in a fair way to solve the problem, which each year presents itself with more and more force, controlling the growing tendency of students to devote too much attention to athletics. From the point of view of the university authorities, success in athletics ought to be a matter of absolute indifference. There is no reason why the university authorities should care whether Harvard or Yale wins: it is their business to give their pupils as good physical development as is desirable to enable them to accomplish the results for

which they come to the university, namely, the development of the mind in the best possible way, not training their physique to an excessive point, for we must remember that we have only one nervous system and if we devote all our nervous energy to the development of the muscles we shall not have it to develop the brain: When the authorities recognize this, and put the matter of gymnastics on a level with the other branches of the curriculum, it seems to me we shall be in a fair way to answer a great many of the questions which now present themselves with very little hope of a speedy solution.

Dr. Sargent: I have been greatly interested in listening to Dr. Brooks's paper, also the discussions that have followed it. Dr. Brooks took me back to the time when I had to decide in my own mind whether to engage in the practice of medicine or to take my studies in medicine preliminary to the work to which I have devoted my life; and it is certainly gratifying to me, in recalling the experiences which I have undergone in the last fifteen years, fighting the questionable tendencies of athletics at first almost single-handed, to hear the comments I have listened to this evening. For a long time I have thought the medical profession was a little bit benighted on this question. To me physical training is nothing but applied physical hygiene. I have given suggestions and hints to that end to the young men who have come under my observation. Unfortunately for the cause of physical training, this subject of athletics has assumed undue importance. No doubt our colleges have allowed this subject to assume a bias in the wrong direction. They have encouraged the spectacular and sporting side of the subject and almost ignored the hygienic and educational aspect. They have nursed and fostered the highest grade of scholarship and extreme athleticism. These are incompatible in the same individuals; therefore the athletes and scholars are contending for fame in opposite directions, one class is striving for distinction by the supreme efforts of the mind and the other class by the supreme efforts of the body; and in my opinion neither class is doing what it ought for the advancement of education in its broadest and noblest sense.

It seems to me time to return to the old Greek idea of unity in development, unity in education, and to take a rational view of the claims of both body and mind, and educate them both together. I see no way of doing this but by recognizing physical training, and putting it on the same footing as any other department in college. When we consider one or two phases of this whole movement, to me it is simply shameful. Harvard and Yale to-day are each spending over $50,000 a year, and employing thirty men, to bring fifty stalwart fellows into condition to meet their foremost rival. On the other hand, the departments of physical training in each institution are spending one-fifth of that sum, and have one-fifth that number of men, to look after the physical training of the remaining students — 98 per cent., or about 3,000, at Harvard University. Now the absurdity of this position is only paralleled by assuming that some few well-chosen speakers should be selected and trained for the rhetorical contests, and the rest of the students be excused in order that they might attend the rehearsals and applaud the progress of their companions. It seems to me that this is radically wrong. In making this assertion I want to remove from your minds, however, the idea that there is any institution in this country that is carrying physical training to excess. If you could have an opportunity of meeting all of these men as they come to the college from the preparatory schools, see them in a state of nature, how impoverished they are — with poorly developed chests, crooked spines and emaciated limbs — you certainly would not consider that physical training was being carried to excess. In fact, I invite you to come to Harvard and look over the photographs of these men, and I think you will be prepared to meet the argument that physical training is being carried to excess in any of our institutions. On the other hand, our scholarly men are suffering for the need of systematic physical exercises, and the majority of our students at the present time do not show permanent signs of gain. Until our scholarly men are encouraged to attend the gymnasium in view of aiding their mental development, and not consider it, as many do, something detrimental to the best intellectual efforts, and when the majority of students can show improvement in their physique, it seems to me it will be time to talk about an excess of physical training. It is a misfortune to have an athletic question and a physical-training question coupled together in the minds of our people. It seems to me the thing for us to do who are interested in the physical welfare of students is to use our utmost effort in the direction of staying the tide of this concentrated athleticism, and try to give to the masses something of the time and the energy now devoted to the special training of the favored few.

Dr. Channing: In regard to the amount of physical training in the female colleges; at Wellesley there are 800 girls, and out of that number about 250 in the Freshman class, and for those girls physical training is compulsory. This year a movement has been made to have the training continued into the Sophomore class; but that is at present all the compulsory physical training that there is at Wellesley. The girl has a start, and then it is stopped and the balance of the time is passed without anything done in that direction. At another college in this State where there are 200 girls, practically nothing whatever is done. There is such a tremendous difference in the amount of attention that is paid to the girls in their colleges and to young men in theirs, very little or nothing being done in some of the former. I am told that in the English colleges for women they spend on the average about five hours a day on their studies; the rest of their time they can devote to out-of-door sports, recreation and exercise, whereas in one of these colleges here in our State the girls devote nine hours a day to their studies, and practically have very little or no time for out-of-door exercise or sports or gymnastics. It seems to me the subject in the end is very much broader than perhaps we usually consider it. Physical training is simply a means to an end and such discussions as these are an assistance in helping to illustrate what can be done; but the great difficulty is that we are constantly talking about it, but do not know how to practically apply it. That is the case in these colleges for girls. I recently talked with the head of one of them where nothing is done, and she asked what should be the first step. Everything must eventually go back to the physical education of the child. That has got to be the starting-point of our efforts. The child starts in a fairly healthy way in the beginning of life, and we must incorporate into our system of education some

plan by which the child can be continued along the course in which he begins. After he gets to be two or three years of age, he is put under intellectual pressure which he is unable to bear, and then he begins to show signs of possible degeneracy; and although we are told that nervous diseases are not practically increasing much at the present time, yet we have this tendency that I speak of in children. The lesson for us to learn is that they are made of plastic material, and are not pieces of machinery. Let our physical training be used to develop this material along simple and natural lines.

DR. WHITE: It seems to me the medical profession can do something in this direction. I do not think we have done our duty by any means. We are constantly in our daily practice making inquiries of individuals as to how much exercise they take, and find how little they do take. Both the university, which is nearest to us, and the school committees which govern our children here, have very slight professional representation upon them. It seems to me the medical profession should attempt in some systematic way to exercise an advisory influence upon these non-professional persons who control the minds and bodies of growing children and younger adults of both sexes. I asked the president of our university not long ago why it was that proper physical training could not be made a part of the regular required routine at Cambridge. He could not give an answer satisfactory to me or, I think, to himself, and he said he did not see how it was possible to do it. Why is it not possible? When I was in college I was aroused at 6 o'clock for six months in the year and at 6.30 the other six months, and taken into a stone building and there spent twenty minutes. That was repeated in the afternoon. They have learned to abolish that requisite, but I think if they had required twenty minutes morning and evening of proper physical training of every student up to the present time there would be better persons living in this community now. I know if I do not give one half-hour of sharp exercise to myself twice a day I am not in proper condition to do my work, nor do I believe any one is. I do not see why the medical profession cannot insist on the governing bodies of our universities putting such a compulsory plan in operation. I do not see the slightest reason why it cannot be introduced into the training of Harvard College next year. I hope some time to see that done.

DR. HARTWELL: I would like to call attention to the Woman's College of Baltimore, which since its opening in 1890 has made it obligatory on all its students to practise daily in the gymnasium under proper supervision and instruction throughout their course. This they must do in order to get their degrees. A word upon the organization of the department may be in place. It was put in charge of a competent woman physician who had studied the best systems of European gymnastics. Her assistants in conducting the department have always been well-trained Swedish women, because the gymnasium was originally fitted with Swedish apparatus.

As to what the medical profession might do in aid of school hygiene I should like to allude to another point. It may not be generally known that it is practically a rule in the Boston schools, laid down by the department of public buildings, that the school-rooms shall not be washed, the reason being that it injures the life of the floors. There are many school-houses in the city of Boston that have not been washed in twenty years. We have had many doctors on the committee, but they have done but little and that unsuccessfully towards changing this. I hope Dr. Durgin will take the matter up, and that the members of this and other societies will back him if he does. It seems to me that having saved the sum necessary to keep the floors clean for so many years, we can afford to keep them clean for the next five, at least.

DR. BROOKS: Dr. Bowditch makes the statement that some object to going through these exercises. All I can say in reply is, that many people object to taking any drug or following any course of treatment, notwithstanding the fact that that they may be benefited by it. All that the physician can do in such cases is to try to prescribe his medicine in as pleasant a form as possible. His exercise must be arranged with the same object. If the patient then refuses to follow his advise the responsibility of his health rests with himself.

Dr. Bowditch asked if I did not think the time devoted to exercise might be more profitably spent? In my opinion one hour a day devoted to exercise which makes a man feel better and gives him greater energy, could not possibly be spent more profitably. In regard to the early great development I think Dr. Bowditch is perfectly right, but I did not touch, as I remember, upon the subject of over-development among athletic young men. I do not think a moderate amount of early development compels a man to take any more exercise in the latter part of his life.

DR. BOWDITCH: I think I did not make my meaning quite understood. Dr. Brooks's last remark has partly answered the first question. The question was whether it was not possible for a man to develop himself so much in his early life that he will require, in order to feel in good condition during the rest of his life, to take an amount of physical exercise which does not do him any harm, of course, but might, perhaps, if he did not have this big physique to take care of, be spent more profitably in other ways. I did not mean that any amount of time could be better spent than in securing one's healthful condition, but whether it was not possible to have a physique which required an undue amount of time, and in that way might involve themselves by a great development of the physique in youth in the employment of their time the rest of their life which might better be put in some other way.

DR. BROOKS: I can only reply to that from my own experience. I played football eight years and rowed seven years, and it was pretty heavy exercise. Two years after I left the medical school I took practically no exercise, and I think I suffered accordingly. During the past year I have taken exercise of a very light character, and I find that it requires a very slight amount to keep me in fairly good condition.

DR. VICKERY: Mayor Bancroft of Cambridge, a prominent athlete, said his exercise seems to keep him going now that he cannot take any.

DR. J. E. GOLDTHWAIT read a

## REPORT OF CASES IN WHICH THERE WAS OBLITERATION OF THE TRANSVERSE ARCH OF THE FOOT.[1]

DR. BRADFORD: When Dr. Goldthwait a year ago called attention to this subject, I think he added more than he realized, more certainly than I did, to

[1] See page 564 of the Journal.

what is an important subject. Since his paper I have had my attention called to a number of cases; and I think any one who has examined the matter will say that he is not only correct in his generalizations, but will recognize the value of this contribution to orthopedic surgery. I have here some impressions of feet from patients whom I have examined for various reasons, and these have been taken with the feet resting without pressure. I have also taken casts where the full pressure has been on, and it is evident that the transverse arch is practically a spring; when much weight is thrown the transverse arch is obliterated. These casts will show that the transverse arch varies in different feet. This one may be considered a normal foot. The other three are pathological, all showing the obliteration of the transverse arch. Now as to symptoms I should agree entirely with what Dr. Goldthwait has said, but I think I would take exception to his statement that the pain is so rarely over the fourth metatarsal. It seems to me he has confounded in his last two cases two affections, one the obliteration of the transverse arch, and the other Morton's affection, which is the pinching of the nerve through the dropping of the fourth metatarsal. The head of the fifth metatarsal being shorter than the fourth, when the fourth drops the head of the fifth pinches the nerve causing an intense pain. It has been my fortune to see ten of these cases besides cases where the pain was not localized but was more in the middle of the foot. To demonstrate this still more clearly I will pass around this specimen comparing it with this. Here is a case with a normal transverse arch. Here is a case where the head of the fourth metatarsal has dropped down and there is intense spasmodic neuralgic pain. Furthermore I cannot force the head of the fourth metatarsal up by pads or whatever means, and I am preparing to do Morton's operation of removing the head of the fourth metatarsal. If we compare this case with that case, and then compare this where there is dropping of the second metatarsal, I think you will see that although they can all be placed under the head of obliteration of the transverse arch, yet at the same time it is a different affection from the wedging of the fourth metatarsal downwards. Here is another specimen where the third and fourth are both lower.

Dr. Lovett: I have been very much interested in the question of the transverse arch since Dr. Goldthwait's paper, and I looked through a day or two ago some fifty or sixty tracings I have had taken of some nurses, and I found that the presence of the transverse arch could not be shown in more than one-fourth or one-third of the cases, and in the majority of the cases where it was absent, it did not give rise to any especial symptoms of discomfort. I presume that an abnormal foot exists in a larger proportion among nurses than among almost any other class in the community; and certainly the longitudinal arch in many of the cases was broken down, too, but the common absence of a transverse arch was very noticeable. With regard to Morton's disease, I could not help feeling as Dr. Bradford did, that that was perfectly well characterized by a definite pain located at the end of the fourth metatarsal; nor do I believe that in all cases it is caused by any breaking down of the transverse arch. The last two cases I have seen have had contraction of the plantar fascia and abnormally high transverse arch. A tracing I meant to bring showed a very well-marked transverse arch in a perfectly typical case of the disease.

The cases of painful affection of the foot where the pain is wandering round in various places associated with breaking down of the transverse arch, have seemed to me more akin to the condition of flat-foot than to Morton's disease proper, which it seems to me has a perfectly definite symptomatology and which is associated with two definite conditions, as I have seen it aside from any change in the transverse arch — one, contraction of the plantar fascia, the other, breaking down of the longitudinal arch of the foot; and it seems to me the term Morton's disease should be confined definitely to cases showing pain at that one place at the end of the fourth metatarsal, because the pathology, as he described it, rested on that, as Dr. Bradford has explained, and in a certain number of those cases I feel sure that the pain is entirely independent of any breaking down of the transverse arch.

Dr. Dane: I have been interested in Dr. Lovett's speaking of the cases in which the pain was located sharply at the point Morton had spoken of and yet showed a distinct transverse arch. Last winter I had two cases, both of women about forty, in which there was very excruciating pain, so much so, that one was obliged to sit down on the steps of a public building and remove the shoe. The treatment for broken-down transverse arch relieved the pain entirely, so that the woman has not had any since; and yet tracing showed almost an abnormally high transverse arch. Blocking it up with a pad in that way completely and immediately relieved the pain.

The method of taking the tracing which I employed was this: I smoked a sheet of paper with camphor, had the patient step on it with the entire weight. Another method was to smear the surface of the foot with Day & Martin's blacking, and have them bear the weight again.

Dr. Goldthwait: Dr. Dane's case is, I think, similar to the cases of so-called acute flat-foot, in which the arch is still present, but with whom the pain is relieved by some support. I do not think the tracings of the transverse arch are invariably satisfactory. They are very suggestive, and to be developed most satisfactorily by having the foot rest lightly upon the paper. I have a series of tracings in which different degrees of weight were borne, which show the transverse arch gradually becoming obliterated as the weight was increased.

I seem to have caused some misunderstanding in using the term metatarsalgia. If Morton's disease is confined purely to the localization of neuralgic pain over the head of the fourth metatarsal bone, no one would take exception, but the term metatarsalgia has been used to describe neuralgic pain in the front part of the foot without more definite localization, for that reason I used the term. The one case in which the pain was located at the head of the fourth metatarsal bone, was entirely relieved and on the first application of the pad, similar to the one passed around; and the patient who had suffered a great many years and to whom the breaking in of a new pair of shoes was perfect torture, and dreaded as much as anything could be dreaded, is entirely relieved and has had no further trouble. I have no doubt there is a certain number of cases in which the nerve is pinched between the heads of the fourth and fifth metatarsal bones which may require operation.

## AMERICAN MEDICAL ASSOCIATION.

FORTY-SIXTH ANNUAL MEETING, BALTIMORE, MD., MAY 7–10, 1895.

(Concluded from No. 22, p. 550.)

SECTION IN MEDICINE. — THIRD DAY (CONTINUED).

A PAPER having the title of

REPORTS ON TYPHOID FEVER — CONTINUED,

was presented by DR. J. E. WOODBRIDGE, Youngstown, O.

The writer has previously expressed his views as to this disease in the *Journal of the American Medical Association*, March 20, 1894, and there gives in full the remedies employed by him and their mode of application. He believes it is possible to avert death in every case and that if the treatment is commenced before the eighth day, the disease can surely be aborted. He does not believe there is in the cases he has reported any doubt as to the correctness of diagnosis, and he has the recorded testimony of a large number of physicians who have adopted his views. Out of 600 cases so treated by others nine have died; and of all the others the average duration of the disease has been only twelve days. He believes that the plan of intestinal antisepsis which he advocates eliminates the danger of perforation and hemorrhage and removes all the other dangers of the later stages of the disease. He believes that the latter results from a specific poison which may possibly be of a microbic origin.

As is known, his initial remedy is a combination of small doses of calomel, podophyllin, carbonate of guaiacol, eucalyptus and menthol in capsule. These he gives frequently so as to produce five or six characteristic passages in the first twenty-four hours. Diarrhea does not contraindicate their use. After the fever curve is brought down, the guaiacol is increased in amount and thymol added. Later the calomel and podophyllin are discontinued and the guaiacol still further increased. Full details are given in the article above referred to.

Several participated in the discussion, the general trend of which was one of scepticism as to the correctness of Dr. Woodbridge's views. Some had tried his remedies with good results, and noted that where the typhoid fever did not abort, it seemed to change its type to a purely intermittent or remittent form.

DR. W. E. QUINE, of Chicago, made the special point that in the light of our present knowledge no diagnosis could be regarded as accurate which was not guarded by the results of the examination of the blood and urine.

DR. WOODBRIDGE, in closing, made the still more remarkable statement that he did not confine his patients to bed but allowed them to walk about and come to his office for treatment (?). He allowed them steak and beef if they desired it.

The next paper was by DR. GEO. W. WEBSTER, of Chicago, on

THE DIFFERENTIAL DIAGNOSIS OF CHOLELITHIASIS.

Ten per cent. of all men, twenty-five per cent. of all women, and thirty-six per cent. of all the insane have gall-stones, but of all those so affected but one per cent. have any symptoms therefrom. Medicines are absolutely useless to dissolve these stones, and the early diagnosis is a necessity as the cases should be sent to a surgical clinic rather than to Carlsbad.

All cases practically fall into two classes, first, those with the stone in the cystic duct, and second those with the stone in the common bile duct. Jaundice is the invariable accompaniment of the latter variety, and may or may not be present in the former.

In the first variety colic is the initial symptom. It is referred to the duodenal region, is sudden, of varying intensity, accompanied by nausea, vomiting, chill, fever, sweating and rarely convulsions. The pulse is frequent, small and soft. Collapse often ensues, with cramps in the voluntary muscles. Physical examination reveals a dilated gall-bladder, while in the second variety we regularly have an atrophy of this organ. The tumor dulness is continuous with that of the liver, and the mass moves with respiration. On auscultation the sound of the stones moving on each other can be heard.

Differential diagnosis of the variety lies between gall-stone, lead colic, malarial poisoning, renal colic, peritonitis, gastralgia and other abdominal tumors. The only positive evidence of gall-stones is to find them in the feces; but it must be remembered that after leaving the biliary passages they may dissolve in the bowel.

In the second variety, operation is more dangerous, though the reasons for the removal of the stones are more imperative. Persistent jaundice of varying severity signifies a movable stone. We have, as before, colic; bile in the urine, with evidences of cholemia due to the degeneration of the hepatic cells; diminution of urine and of urea; slight albuminuria; melancholia. The stools are scanty and clay-colored. The pulse is slow. We may have septic endocarditis, with blood disintegration. Vascular tension is low. The appetite poor and the tongue coated.

It is useless to make an anastomosis between the gall-bladder and the gut, leaving the stones *in situ* in the common duct. Moreover, the irritation from the latter may lead to malignant disease of the head of the pancreas.

DR. J. H. MUSSER, of Philadelphia, said he could not rely on the statements of the text-books as to the age at which cholelithiatic symptoms manifested themselves. While they were rare before thirty, he believed that they might occur as early as the fifteenth year, and related the clinical history of a case to substantiate this view. Attacks of abdominal pain coming on in early life were often misunderstood, but their continuance in later years, with additional symptoms, might show their real nature as to their origin from biliary disturbances. It should be remembered that pain was not constant in biliary obstruction. As to gastralgia, he believed that many cases supposed to be such were really of hepatic origin, though, of course, there could be a true gastralgia in neuropathic persons and in the form of a crisis in certain nervous diseases, as tabes.

The indications for operation he would find in renal inadequacy and the state of the red cells of the blood. After the latter had once fallen below 3,000,000 per cubic millimetre, subsequent disappearance was startlingly rapid. In one instance under his observation, the fall from 2,500,000 to 800,000 had occurred in a very few days. Cases of pneumonia and biliary colic were often confounded in their incipiency; and in the latter the fever often assumed an intermittent type.

SECTION IN MEDICINE. — FOURTH DAY.

The session opened with the reading of a paper on

NEW METHODS OF PRECISION IN THE INVESTIGATION OF FUNCTIONAL DISORDERS OF DIGESTION,

by DR. J. H. KELLOGG, Battle Creek, Mich.

In his methods, the writer follows the general rules laid down by Hayem and Winter, but has modified them in certain respects. The main problem is to estimate the abnormal conditions of the stomach. In the study of over four thousand stomach fluids he has found it possible to include all cases of disorder of the chemico vital processes of the stomach as regards proteid digestions into four general classes, hyperpepsia, hypopepsia, apepsia and dyspepsia. In hyperpepsia, the calculated acidity is above the normal. The significance of this is that the free HCl and combined chlorine are found in quantities sufficient to produce normal hyperacidity, there being excess of stomach work not regarding quality.

In hypopepsia free HCl and combined chlorides are not found in sufficient quantities to produce a normal degree of acidity. Here we may have a typical condition, or H without deficiency of HCl. In either the proteid digestion may be normal in quality or neutral chlor-organic compounds may be present and each of the latter types may or may not show fermentation.

In apepsia there is no normal proteid digestion. The characteristics are a neutral or a very slightly acid stomach fluid with or without fermentation.

In dyspepsia HCl and combined chlorides are present in sufficient quantities to produce a normal degree of acidity, with the same subdivisions as the foregoing.

Some curious results have come to light in the course of his study of stomach fluids. The old teaching of the physiologists is that not much sugar is present in the stomach during gastric digestion but he has found it present in the proportion of seven or eight grammes to one hundred cubic centimetres of stomach fluid. Soluble and unconverted starch often accounts for fermentation where there is hyperacidity.

DR. WEBSTER opened the discussion by stating that there was a want of knowledge as to what occurs in health and that in any given case we should try to determine first, the locality and second, the extent of the departure from health.

DR. KELLOGG stated, in closing, that he had found the chewing of dry food the best method of promoting the salivary flow. Stimulants of all kinds, however, would after awhile lose their power. A 1–4,000 strength of HCl would greatly lessen the salivary digestion in the stomach, would in fact practically stop it.

DR. I. E. ATKINSON, of Baltimore, Md., followed with a paper on

A CASE OF SUPPURATIVE PANCREATITIS, WITH NECROPSY.

The patient was a woman aged thirty-five, the mother of two children, the one twelve years and the other six months old. She was first seen on December 2, 1894. Though still quite stout she had lost over forty pounds. Fifteen months previously she had an attack of hepatic colic with a secondary jaundice lasting over three weeks. No stones were found in the stools, the pain was constant but ceased abruptly. In September, another attack of colic occurred with secondary jaundice. The urine was dark and the stools clay-colored. The pain gradually wore away and the jaundice also, but she gradually grew weaker and finally took to bed. Pain returned, though milder in character, with jaundice and the vomiting of stomach contents occasionally streaked with blood.

She was examined on the sixty-second day of her confinement to bed. She had vomited several days, almost without nausea, a greenish fluid and the bowels were slightly loose. Singultus was annoying. In the epigastrium was an area of induration not movable or fluctuating. Its diameter was three inches in the median line and four-and-one-half laterally toward the left mammary line. Percussion gave a relatively dull note but it was not tympanitic in character. The lower abdomen was normal. The urine showed a gravity of 1.020 and a little sugar, but no albumin. Severe lancinating pains were felt with a point of greatest intensity under the xiphoid cartilage extending in the back between the shoulders. Respiration was rapid and of a purely costal type. There was a slight febrile movement but no chill and no sweating except about the head. All evidence of intestinal obstruction was wanting, in fact the bowels were rather loose.

A diagnosis was made of hepatic colic with impaction of the stone at the orifice of the common duct and pancreatic duct, producing incomplete obstruction, inflammation and hyperemia.

She grew steadily worse and the indurated area extended down to the navel. Diarrhea continued but there was no free fat in the stools. Vomiting of green mucus with blood and ingesta was persistent. All treatment was useless and in view of her low condition, surgical interference was deemed out of the question. Crepitation became evident over the lobar lungs posteriorly. A discharge of bloody pus from the bowels occurred, the mass grew smaller and the patient died in collapse.

The autopsy revealed considerable foul gas in the abdomen which escaped with an explosive sound; multiple peritoneal adhesions easily broken up; no fluid in cavity; areas of fat necrosis in omentum on left side over abscess cavity; obliteration of the head of the pancreas, the remainder of which formed the posterior wall of the abscess cavity, the walls of which extended up behind the stomach. The pus collection seemed to have occupied the usual site of the pancreas and of the lesser omental cavity. A small bit of pancreas tissue attached by a sort of pedicle lay free in the abscess cavity. The opening of the cavity into the bowel was at the normal site of the entrance of the pancreatic duct. The source of the gas could not be learned.

Dr. Atkinson said that with the light thrown on diseases of the pancreas by the classical writings of Fitz, we ought to be able to recognize these cases. Fitz has divided them into three classes: the hemorrhagic, gangrenous and suppurative. The first variety is to be recognized by its sudden onset and the presence of a tumor, tympanitic from the superjacent bowel. It proves fatal in a very few days or may pass into the gangrenous form and last from a few days to six or eight weeks. The patients die from asthenia or from sepsis. The suppurative variety may extend even over one year. As a rule, there is no fat necrosis. Dr. Atkinson believes that this case was undoubtedly originally one of the hemorrhagic variety.

The paper was discussed by DR. STOCKTON, who said he had never seen a suppurative case, and he regarded it difficult to diagnosticate this class of maladies. The case reported showed less depression and shock than usual. He had never seen free fat in the stools in these malignant cases under his observation. In one instance the pancreas had been large and hard, like the condition found in an interstitial nephritis. This case did not appear to be one of malignant growth and there had been no hemorrhage or evidence of previous trouble. He would ask Dr. Atkinson if he had found fat necrosis more common in the interstitial forms of the disease.

The latter, in reply, stated that no gall-stones had been found at autopsy. As to fat in the stools, he believed it to be the rule except in acute cases. Sugar in the urine was by no means common, and when it occurred, it generally came late. If we found on abdominal section at autopsy fat necrosis, it was at once an indication of the nature of the trouble.

The closing paper of the session was read by DR. T. O. SUMMERS, of New York, on

LEUCOCYTES AND PROTONUCLEIN.

After stating certain general propositions with reference to the successive steps taken towards the establishment of protonuclein as a therapeutic agent, and its method of preparation, the writer concluded with the following statements as to its administration and the indications for its use:

Protonuclein is prepared in tablets, powders, and may be used hypodermically. It is a powerful prophylactic as well as a direct antitoxic, the latter effect extending to all zymotic diseases. It will keep indefinitely, being enveloped in benzoin and milk-sugar which preserve its potential activity just as a grain of corn is preserved by its environment.

Protonuclein is indicated in any form of the disease where the organism is in a low asthenic condition, and in all zymotic or inflammatory conditions or whenever there are toxic germs to be destroyed.

The following papers were read by title: "The Conservative Use of Lavage in Diseases of the Stomach," by Dr. J. M. G. Carter, Waukegan, Ill. "Constipation and Faulty Elimination as a Factor in Disease," by Dr. F. S. Thomas, Council Bluffs, Iowa. "The Physician," by Dr. Julius Kohl, Belleville, Ill.

The following were elected officers of the Section for the ensuing year: Chairman, Wm. E. Quine, Chicago, Ill.; Secretary, DeLancy Rochester, Buffalo, N. Y.

## Recent Literature.

*Clinical Gynæcology, Medical and Surgical.* For Students and Practitioners. By eminent American teachers. Edited by JOHN M. KEATING, M.D., LL.D., and by HENRY C. COE, M.D., M.R.C.S., Professor of Gynæcology, New York Polyclinic. Illustrated. Philadelphia: J. P. Lippincott Company. 1895.

The extended works in conjoint authorship which are so prominent a feature in the medical literature of the present day, offer an especially hard task to the reviewer, since each one of the component parts is necessarily an entity in itself, and it is manifestly impossible to criticise each successive article in a full and satisfactory manner within the limits of a single review.

These works usually fail in comprehensiveness and are marred by frequent repetitions. These failures are in part inherent in the system; in part are usually the result of an attempt to arrange the book after the method which would be followed by a single author, and to distribute to each of the contributors a portion which is expected to be in direct continuity with those which precede and follow it.

In the present volume the editorial work has been admirably done, in that the subject has been divided into broad general topics in such a way that each author's sub-subject is, so far as possible, independent of the others, and capable of standing by itself. The book is then a series of clinical essays on gynecological subjects, which are so arranged that between them they cover the whole field of the specialty very admirably.

Among the twenty articles which comprise the book, it is only possible for us to pick out for remark a few which are distinguished by especial excellence.

The introductory chapter is written in the well-known flowing and eloquent style of the late William Goodell, and is a mournful reminder of the loss which the profession has so lately sustained.

The eighty-two pages on gynecological technique by Hunter Robb, will perhaps be as valuable to the general practitioner as any portion of the book. The subject is one in which Dr. Robb has done perhaps more extensive and exact work than has ever been done by any other gynecologist. The article is most clearly and practically written. Every page teems with facts which are essential to operative success, and it will be read with interest by experts as well as by beginners.

The chapter on Anomalies of Development in the Genital Tract, by Barton C. Hirst, M.D., is an admirable one. That on Traumatic Lesions of the Vulva, Vagina, and Cervix, by Matthew D. Mann, M.D., is admirable in the clearness with which the author describes the procedures for the repair of these lesions, and the decision with which he adheres to the descriptions of those which are of acknowledged worth, without complicating his article by long-drawn-out descriptions of others which he does not wish to recommend.

The chapter on Inflammation of the Female Genital Organs is fully up to the standard which would have been expected from its distinguished author, Dr. William M. Polk, whose name has been so closely identified with recent progress in this subject.

In these days when the interest in everything gynecological tends so strongly to become wholly surgical, the editors are to be congratulated on having been able to place the article on Displacements of the Uterus, by Dr. Paul F. Mundé, in the hands of a contributor who is still an active advocate of the use of minor measures of treatment, and is not disposed to pass over the pessary with a perfunctory notice for the sake of having the more space to devote to hysterorrhaphy, the Alexander-Adams, and other similar operations.

Drs. Hermann J. Boldt and Henry C. Coe furnish most exhaustive and valuable articles on the Neoplasms of the Female Genital Tract. Both of these articles give to the work a value to the specialist as a book of reference which it could not otherwise have had.

The article on the Diseases of the Urethra, Bladder,

and Ureters, by Charles Jewett, M.D., and John Polak, M.D., has the advantage of dealing with a field which is at this moment in the process of active development. It is fully up to the standard of the day, and is of especial interest in its suggestion of the extent to which recently discovered methods of exploration are curtailing the number of so-called functional ailments, and furnish us instead with a pathologically accurate diagnosis upon which to found our treatment.

We are very glad to see that the volume includes an article on Diseases of the Rectum and Anus by the able pen of Dr. Edward E. Montgomery. This subject is one which the gynecologist can never afford to neglect, but which is too often omitted from text-books on the subject.

The book as a whole is to be cordially recommended.

*Twenty-sixth Annual Report relating to the Registry and Return of Births, Marriages and Deaths in Michigan, for the year* 1892. Pp. 375. Lansing, Mich., 1894.

The Registration Reports of Michigan are in many respects, among the best reports of the kind in the United States, so far as thoroughness of compilation of the material presented is concerned.

The returns of births and deaths are, as the compiler states, "deficient to such a degree that they would require to be increased by at least 60 per cent. to correctly represent the actual numbers of births and deaths that occurred." This deficiency, however, is in no way to be charged to the compiler but to the existing statutes relating to registration in Michigan. The defects of these statutes are fully pointed out in this report.

It is evident that the compiler has made the best possible use of the deficient data in hand, and is entitled to much credit for so fully and thoroughly presenting the subject. Intelligent comparisons are made with the statistics of other States and countries.

The marriage, birth, and death rates for 1892, and for the five years (1886–90), as presented in Table 5, were as follows:

| | 1886–1890. | 1892. |
|---|---|---|
| Marriage-rate per 1,000 | 17.1 | 18.4 |
| Birth-rate " | 23.8 | 21.2 |
| Death-rate " | 10.1 | 9.9 |

From this it would appear that the returns of deaths were considerably more deficient than those of births.

Of the total mortality reported:

| | | |
|---|---|---|
| Deaths from consumption caused | 11.8 | per cent. |
| " diphtheria and croup caused | 7.5 | " |
| " typhoid fever caused | 3.6 | " |
| " scarlet fever caused | 2.5 | " |
| " whooping-cough caused | 0.8 | " |
| " cancer caused | 3.2 | " |
| " pneumonia caused | 7.4 | " |
| " brain diseases caused | 8.7 | " |
| " heart diseases caused | 5.5 | " |

The compiler recognizes the importance of a revision of the old system of classification and nosology which has been in use for a very long period (Dr. Farr's), and boldly strikes out in a new line, with a provisional classification, which he recommends and employs as a practical system adapted to modern requirements. His reasons for the changes are fully discussed in this report. One of the chief changes in this system is the transfer of tuberculosis to the class of specific infectious diseases.

In the Twenty-fifth Annual Registration Report of Michigan a review of the results of registration in that State for a quarter of a century was presented as fully as the imperfect data collected would admit.

On the other hand, the Fiftieth Annual Registration Report of Massachusetts might have presented a half-century's work of extremely valuable character, since the registration of this State is far more thorough and complete than that of Michigan; but when the report was issued, it was found, to the shame of Massachusetts, to contain no reference whatever to the fifty years' work, and was generally condemned by experts as the most worthless report of the series. Its successors, the reports of 1892 and 1893, are quite as deficient and useless, so far as any "practical utility" is concerned, as that of 1891.

The State of Michigan may be congratulated on the fact that this important department of public work has been intrusted to a competent medical authority, who fully appreciates the value of the work of his department.

*Die Bekämpfung der Infectionskrankheiten: Hygienischer Theil.* Von Oberingenieur J. BRIX PROF. DR. E. PFUHL, und Hafenarzt DR. NOCHT, Herausgegeben von Stabsarzt PROF. DR. BEHRING. Pp. 493. Leipsig: Georg Thieme. 1894.

It would be impossible, within the limits of a book-notice to give a complete *résumé* of the contents of this extremely valuable work published under the direction of a most progressive author, who has called to his aid the best experts in the subjects treated.

The first portion of the work, by Chief Engineer Brix, of Wiesbaden, treats of the sanitary measures for the prevention of those infectious diseases which stand in relation to water, and the soil. In this portion of the work all questions relating to water-supplies, both public and private, and to sewerage and refuse disposal of towns and dwellings, are treated in the most thorough and systematic manner. The purification of water and of sewage occupy an important share of the work.

It is a satisfaction to find, in a work of this character, that the principles of water and sewage purification are laid down in an exceedingly clear and concise manner, and with no uncertain sound: For example, "By no method of purification can the sewage of cities be so thoroughly accomplished, as by means of irrigation."

Drs. Pfuhl, of Berlin, and Nocht, of Hamburg, contribute the portion upon disinfection of clothing, linen, beds, houses and ship-utensils. This chapter is fully illustrated with cuts and plans of disinfecting stations and apparatus.

The final chapter is contributed by Port-Physician Nocht, of Hamburg, and treats of the disinfection of ships. Prominence is given to the use of lime (in the form of whitewash and of the consistency of cream) and of steam. Bilge-water and the disinfection of the bilge receive due attention, and the results of analysis of the bilge-water of eleven ships are given.

The work is very properly dedicated to Dr. R. Koch, whose teachings and influence the authors gratefully acknowledge.

It deserves a good English translation and will serve as an excellent text-book for the higher technical schools. Its very elaborate table of contents, comprising twenty-five pages, should be alphabetically arranged in a second edition, or possibly at the close of a therapeutic volume which may soon follow

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, JUNE 6, 1895.

*A Journal of Medicine, Surgery, and Allied Sciences, published at Boston, weekly, by the undersigned.*

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## EXPERIMENTAL MYELITIS.

THE action of bacteria or their products on the central nervous system is a subject which for a number of years has been exciting a large amount of speculation. Clinical evidence has not been lacking to show the probable infectious nature of certain lesions, notably those included under the general head of myelitis. Putnam's exhaustive review of the part infection plays in nervous disease, published in a recent number of the *American Journal of Medical Sciences* (March, 1895), gives one a conception of the great amount of work which had been done upon the subject up to that time. In view of the extensive literature which has appeared, and the wide interest which the whole subject has aroused from a clinical point of view, it is rather remarkable that attempts at experimental verification have been comparatively few. It is, therefore, with great satisfaction that we call attention in some detail to an article in the February number of the *Annales de l'Institut Pasteur*, the result of the work of Vidal and Bezançon, from the laboratory of Professor Cornil. The object of this investigation was the production of myelitis by means of streptococcus injections.

After discussing briefly the work of an experimental nature hitherto done on the subject, with references, the writers go on to the details of their own experiments. The animal used for inoculation was the rabbit, the aim being to reproduce in it as closely as possible the conditions which are observed clinically in man. To accomplish this end they inoculated a large number of animals, 116 in all, with streptococci taken from 89 different sources, and endowed with varying degrees of virulence. An enumeration of the origin of the streptococci cultures is as follows: 20 from normal mouths; 49 from the mouths of patients suffering from erysipelas, scarlatina, measles, small-pox, sore throats of various sorts, typhoid fever, influenza, pneumonia, etc.; the bacteria were also taken from a normal duodenum, from puerperal infection, lymphangitis, erysipelatous patches, appendicitis, purpura, and abscess of breast.

Of the 116 inoculations, but seven animals, or six per cent., later developed paralytic symptoms, which appeared at intervals between the seventh day and the second month, and ran a different clinical course. The streptococci which led to the paralysis were derived, in one case, from an erysipelatous mouth, once from the mouth of a small-pox patient, once from the uterus of a puerperally-infected woman, twice from the same normal mouth, the virulence, however, of the streptococcus in these two latter cases being increased by association with the colon bacillus. In the remaining cases, the inoculation was made from a culture taken from a pseudo-diphtheritic membrane. The animals were inoculated, for the most part, in the cellular tissue of the ear. A rise of temperature followed in most of the cases, with various local disturbances about the seat of inoculation. The advent of paralytic symptoms bore no relation to the supposed virulence of the organism injected. In the seven cases death resulted 13, 15, 25, 32, 37, 45 and 70 days after inoculation.

The advent of myelitis appeared in some cases as a sequel of the disturbance caused by inoculation; in others the animals had apparently completely recovered when the paralysis set in; in still others the spinal cord lesion was the first clinical manifestation of the infection. As a rule, the spinal symptoms appeared quickly, without appreciable cause. In others an exciting cause could be assigned, as in the following case: A male rabbit, inoculated two months before, had been perfectly well until in attempting copulation, he became suddenly paralyzed. Such a case bears a striking analogy to the sudden onset of myelitis in persons to all appearances previously healthy — not an infrequent clinical observation. The symptoms on the part of the affected animals varied widely: the paraplegia was in some cases flaccid in character, in others associated with contractures. In two rabbits the contractures were general, affecting all the extremities and the muscles of the trunk and head. One animal was hemiplegic; all presented considerable muscular atrophy, and nearly all had diarrhea, fecal incontinence and retention of urine.

Of the seven animals that died the spinal cord was examined in four cases. There was no macroscopic lesion, neither meningeal changes nor areas of softening. In one case, after two months' hardening in Müller's fluid, certain changes could be discerned with the naked eye, which later found an histological explanation.

After hardening, the cords were cut and stained in various ways, the bacteriological examinations for streptococci being made by Weigert's method. In every case histological examination showed changes of a diffuse nature, degenerative in character, and of varying intensity, affecting both gray and white matter. The lesions were most marked in the cord whose macroscopic appearance was pathological after hardening in Müller's fluid.

The gray matter throughout the cords was more or less affected, but especially in the lumbar enlargement. The ganglion cells of the anterior horns showed marked degenerative changes up to complete destruction. The neuroglia of the gray matter was but slightly affected; especially was there absolutely no trace of an inflammatory process to be observed. Occasional large granular cells were noted in the neighborhood of degenerating ganglion cells. There was only slight alteration of nerve fibres, merely hypertrophy of certain axis-cylinder processes.

The vascular changes were extreme, especially in the capillaries of the anterior horns and the commissures. The vessels appeared engorged with blood, particularly at the level of the lumbar enlargement; the walls at places were ruptured and the blood extravasated into the surrounding tissue even to the extent of producing infarcts. There was, however, absolutely no indication of inflammatory change, no thickening of capillary walls nor leucocyte infiltration.

The lesions of the white matter were not less interesting, and were identical in the four cases examined, differing only in their intensity. The degenerative changes observed were irregular in distribution, affecting both myeline sheaths and axis-cylinder processes, in the usual way. The neuroglia, as in the gray matter, showed only slight alterations. Large numbers of compound granule cells were visible in the degenerating white matter and especially about its periphery. The ganglia, nerve roots, peripheral nerves and muscles were found to be normal.

The conclusions which the writers reach from their observations, in connection with those made by other investigators are, that in the rabbit the cord lesions produced by streptococcus inoculations may show themselves symptomatically either by progressive muscular atrophy, or by flaccid paraplegia of subacute course, or by paralyses with more or less generalized contractures.

Such experimental myelitides reproduce for the most part the lesions observed in man described as acute myelitis. There are, however, two peculiarities of the human form which are not reproduced experimentally, namely, the perivascular extravasation of leucocytes, and the hypertrophy of neuroglia. Bacteriological examination of the rabbits' cords did not demonstrate the presence of streptococci, whereas they were at times found in the viscera and blood, whence the legitimate conclusion is reached that the observed lesion is produced by soluble toxines and not by actual bacterial action.

The importance of the work, whose substance we have attempted to give in the foregoing abstract, is certainly very great, both from a scientific and a practical point of view. Those who have the progress of scientific neurology at heart will most heartily welcome any painstaking attempt to establish its etiological problems on a basis of demonstrated fact. Practically, too, there is much to be gained from any knowledge of the causation of disease, which is definite and exact. The time has long since past for the old reproach to be raised that the efforts of the theorist in medicine have no definite bearing on the everyday work of his more practical brother. It must be through the establishment of etiological relationships, which alone can be worked out by means of laborious scientific methods, that the ultimate good of the community at large may best be subserved.

## EXCISION OF THE STERNO-MASTOID MUSCLE FOR WRY-NECK.

Mikulicz, of Breslau, has published an interesting article[1] in which he discusses the various methods of treatment for wry-neck, and its pathology. He considers that open incision of the muscles (Volkmann) has no special advantage over a thorough subcutaneous operation. He advocates in severe cases a complete extirpation of the muscle. He claims that the muscle is completely degenerated and shows no faradic reaction; that it has no functional value; and that any disfigurement of the neck resulting from its loss is more than compensated by the rapid relief from the torticollis. He states that, contrary to the general impression, the fibrous degeneration rarely affects the muscle transversely, but rather longitudinally along the fibres. In rare cases the lower half was found affected.

Mikulicz thus describes his operation: A skin incision, three to four centimetres long, between the sternal and clavicular ends of the muscle; skin and platysma divided; with blunt instruments the sternal and clavicular insertions are exposed and undermined; the deeper structures are protected by an elevator; the muscular insertions are separated from the bones; the cut ends are seized with forceps and strongly drawn out of the wound. As the muscle is pulled down, it is freed from its sheath. The head is at the same time held so as to relax the muscle. In this way the muscle can be exposed nearly to the mastoid process. When the limit of the diseased portion is reached, it is divided with scissors. The portion connected with the spinal accessory nerve is left undisturbed. After extirpation of the muscle the wound is sutured without drainage and the head bandaged in a corrected position.

Since April, 1891, this surgeon has treated 25 cases of torticollis: 22 congenital, three acquired. Of these, three yielded easily to orthopedic treatment; five were treated by subcutaneous tenotomy; 17 by extirpation (eight partial, nine total) of the muscle, and in the whole 17 the result was satisfactory. Where no secondary changes in the vertebræ existed, the restoration of the normal position of the head was rapid. A flattening of the side of the neck resulted from the removal of the muscle. The muscle removed was found in all cases to be diffusely diseased, always along the course of the fibre.

Mikulicz regards the process as a variety of myositis

[1] Centralblatt. f. Chir., 1895, xxii, 1.

fibrosa — a peculiar chronic inflammatory process; and thinks that those swellings of new-born children, called hematoma, which result in muscular contraction, are inflammatory processes from the beginning. The evidence in favor of this opinion is stated, and is quite interesting.

The article is somewhat startling on account of the method of treatment proposed, and will not be accepted as conclusive without discussion, at least as far as treatment is concerned. It has already elicited a reply from Lorenz, of Vienna, who considers that the after-treatment is as important in these cases as in those of club-foot; that the bony changes must be treated as well as the muscular contraction; that there coexists in these cases a cervical scoliosis which must be corrected before a perfect result is obtained, and that this is true whether the sterno-mastoid muscle is divided transversely by tenotomy or the open method, or extirpated entirely.

Lorenz claims, and justly too, that if proper treatment is directed to the spinal changes there will be very few cases which will require so extreme a procedure as total extirpation of the muscle.[2] After open or subcutaneous section of the contracted sterno-mastoid, he practises "plastic correction" of the deformity. After dressing the wound aseptically, the narcosis is continued, the forehead and occiput are grasped between the hands, and the head bent in a sagittal plane toward the side formerly convex. All violent movements must be avoided, and the amount of force used be carefully estimated. In order to accomplish this properly, considerable time is often required. When the head has been well carried down to the desired side, it is grasped by applying the fingers of each hand to the skull on the convex side, while the thumbs are placed on each side of the ear on the concave side, and the head carried by forcible and repeated efforts so far toward the side formerly convex, that the ear touches the shoulder. The correction must be made complete and forcible, according as the preceding deformity was severe. In less than half an hour the most obstinate forms may be thus corrected. The operation is a trying one for the surgeon, and care must be taken that the trachea is not compressed during the manipulations. The ends of the divided muscle are so far separated by this manœuvre, that there is no danger of cicatricial contraction bringing them together again. The head is held from ten to fourteen days in the corrected position by a suitable bandage, and after the removal of the bandage, active movements are practised; no mechanical treatment is required.

Lorenz contends that better results will be attained, and with less deformity, by this method than by Mikulicz's total extirpation of the sterno-mastoid. Inasmuch as the defect left by division would certainly be less than by excision of the muscle, his contention is probably right, at least in reference to the deformity.

[2] Centralblatt. f. Chir., 1895, xxii, 105.

## MEDICAL NOTES.

THE EIGHTIETH BIRTHDAY OF PROFESSOR VON DITTEL. — Prof. L. von Dittel, of Vienna, celebrated his eightieth birthday on May 15th.

THE CHAIR OF HYGIENE AT MARBURG. — Professor Behring has been nominated for the chair of hygiene at Marburg, as successor to Prof. C. Fraenkel, who has been called to the chair of hygiene at Halle.

DR. BARNES HONORED. — The Society of Obstetrics and Gynecology of Bordeaux, in organizing a Congress for August 8th, on the occasion of the Exposition, has elected Dr. Robert Barnes *Président d'Honneur*.

PROPOSED MEDICAL LEGISLATION IN WISCONSIN. — Attempts are being made by Wisconsin physicians to secure the enactment by the Legislature of a law for the regulation of the practice of medicine.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION. — The twenty-first annual meeting will be held in Detroit on September 3d, 4th, 5th and 6th. Dr. William Pepper, of Philadelphia, is to deliver the annual address in medicine.

A CAMPHOR FAMINE. — According to reports from London, a camphor famine is now threatened as one of the results of the China-Japanese war. Cholera mixtures and smokeless powder will be expensive luxuries during the summer.

A QUARANTINE AGAINST THE PLAGUE. — Under the last regulations of the United States Treasury Department, the plague has been declared quarantinable, along with cholera, yellow-fever, typhus, variola and leprosy. The plague is now raging at Amoy, China, at the rate of fifteen deaths a day.

STRYCHNINE IN SNAKEBITE. — Dr. T. A. Manikam Pillay, in medical charge of the hospital at Ulunderpet, South Ascot, India, reports in the *India Medical Record* of December 16, 1894, three cases of snakebite successfully treated with hypodermic injections of strychuine, according to Dr. Mueller's method.

THE DECORATION OF M. PASTEUR. — The recent statement in *Figaro* that M. Pasteur had refused a decoration offered him by the Kaiser in recognition of his services to humanity, because the memory of 1870 was too strong to allow him to accept it, has been authoritatively denied in Germany. It is stated that no decoration was offered him, and therefore he had no opportunity to refuse.

RETIREMENT OF JOHN S. BILLINGS. — Dr. John S. Billings announces his intention of retiring from his position in the army next October. He hopes before that time to have completed the Surgeon-General's Catalogue, a work which will always remain a monument to his executive ability, learning and perseverance. Its importance to the workers in medicine and medical literature can hardly be overestimated. Dr. Billings retires in order to accept the chair of hygiene at the University of Pennsylvania.

AN ORDER OF THE COURT OF INTEREST TO DR. KEELEY. — According to the *Chicago Herald* of May 2d, Judge Myers of the United States District Court, in session at Leavenworth, Kan., has made a very important order affecting the rights of Dr. Leslie E. Keeley. W. F. Johnson, of Topeka, sues Dr. Keeley for $100,000 damages, the petition reciting that plaintiff has been made a physical wreck because of the gold cure. Judge Myers, in granting the prisoner's request, rules that Dr. Keeley must make known the ingredients of his bichloride of gold compound. The court holds that the cure is not a property right nor trade secret. Inasmuch as it is unprotected by patent and has been in use more than two years, there is nothing to prevent Dr. Keeley's testifying as to its composition, and the court orders him to do so.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, May 29, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 55, scarlet fever 32, measles 87, typhoid fever 8. During the week ending June 5th, the report was as follows: diphtheria 70, scarlet fever 28, measles 66, typhoid fever 15.

APPOINTMENTS AT THE HARVARD MEDICAL SCHOOL. — Dr. Harold C. Ernst has been appointed Professor of Bacteriology in the Harvard Medical School, and Dr. Francis H. Davenport Assistant Professor of Gynecology at the Harvard Medical School.

PROF. THEOBALD SMITH, M.D. — Dr. Theobald Smith, formerly chief of the Division of Animal Pathology in the United States Bureau of Agriculture, at Washington, has been appointed Bacteriologist of the Massachusetts State Board of Health, and Professor of Applied Zoölogy in the Bussey Institute of Harvard University.

THE ANNUAL DINNER OF THE MASSACHUSETTS MEDICAL SOCIETY. — At the Annual Dinner of the Massachusetts Medical Society on June 12th, His Excellency, Frederic T. Greenhalge, Governor of Massachusetts, Prof. Charles Eliot Norton, of Harvard University, the Rev. James B. Doonan, of Boston College, and Sir William H. Hingston, of Montreal, will be the after-dinner speakers.

BEQUESTS TO HOSPITALS. — By the will of the late Joseph B. Lefavour, of Beverly, Mass., $5,000 is bequeathed to the Beverly Hospital, and $5,000 to the Free Hospital for Women in Boston.

MEDICAL LEGISLATION IN RHODE ISLAND. — The Legislature of the State of Rhode Island has recently passed an act for the regulation of the practice of medicine.

THE KEELEY BILL DEFEATED. — The bill to render the employment of the Keeley treatment compulsory at the Massachusetts Hospital for Dipsomaniacs and Inebriates has been again defeated in the Massachusetts House of Representatives.

ADAMS NERVINE ASYLUM. — The Adams Nervine Asylum at Jamaica Plain is about to open a building with twelve beds for the reception of male patients, inhabitants of Massachusetts. Insane persons cannot be received, and a certificate from the attending physician that the patient has disease of the nervous system will be required. Hitherto the benefits of this charity have been confined to women.

THE INCREASE OF CREMATION. — At a public meeting of the New England Cremation Society held in Boston on May 31st, an interesting history of Cremation in the United States was given by the president, Mr. John Storer Cobb, in his annual address. During the ten years in which this method has been used for the disposal of the dead 17 crematories have been established. The following figures show the number of bodies cremated throughout the country in each of the 10 years: In 1885, 36; 1886, 119; 1887, 125; 1888, 199; 1889, 262; 1890, 362; 1891, 464; 1892, 576; 1893, 677; 1894, 876. These figures are interesting in showing a steady and rapid increase, from 36 in 1885 to 876 in 1894.

### NEW YORK.

YELLOW FEVER IN HAVANA. — Reports from Havana show that yellow fever has increased very notably of late in that city. Health-Officer Doty, appreciating the danger of the disease arriving in New York, on June 2d started for Cuba in order to familiarize himself with the methods of discharging and lading cargoes at the Cuban ports. At Havana he will consult with Dr. Burgess, the United States Medical Inspector, and will examine the system of the Spanish officials for preventing the spread of yellow fever in Cuba. His trip will include visits to Matanzas, Cardenas and Calbarien, and on his way home Dr. Doty will inspect the new quarantine station at New Orleans.

THE NEW YORK STATE MEDICAL ASSOCIATION. — The Eleventh Annual Meeting of the Fifth District Branch of the New York State Medical Association was held in Brooklyn on May 28th. There was a morning and an afternoon session, and during the recess a luncheon was provided by the Branch. The meeting was presided over by Dr. Austin Flint, of New York, who made an address at the morning session. He also opened the discussion on a paper by Dr. H. A. Hanbold, of New York, on "The Propriety of Administering Digestive Ferments," in which the author argued, on physiological grounds, against the use of such ferments. Professor Flint in his remarks also took the same position. Nearly all the cases of dyspepsia which he had seen, he said, had been old cases which had been under the care of other physicians, and most of them had been treated unsuccessfully with pepsin, pancreatin, etc. A careful study of all these cases failed to show that any one of the patients had received the slightest benefit from this class of remedies. He would not say that some of the cases had not improved while digestive ferments were

being given, but whatever improvement was seen was due, not to them, but to the judicious regulation of the diet. A change of food was often of the greatest possible service in restoring the patients' digestive powers to their normal condition.

Among the other papers were "Living Bacteria in the Bladder," by Dr. X. T. Bates, of Dutchess County; "The Advocacy of a New Method of Operation for Marked Deflection of the Nasal Septum," by Dr. S. Oppenheimer, of New York; "The Abuse of Medical Charities," by Dr. Frank van Fleet, of New York; "Overfeeding," by Dr. T. J. Barton, of Dutchess County; "Chronic Catarrhal Laryngitis, with special reference to its Etiology," by Dr. Dwight L. Hubbard, of New York; and "Clinical Notes on a Recent Series of Operations," by Dr. Thomas H. Manley, of New York.

THE UNIVERSITY OF THE CITY OF NEW YORK.— The death of Dr. Alfred L. Loomis has led to a number of changes in the Faculty of the Medical Department of the University of the City of New York. Dr. Wm. H. Thomson, is now Professor of Medicine; Dr. W. Gilman Thompson, Professor of Materia Medica, Therapeutics and Clinical Medicine; Dr. Charles L. Bristol, Lecturer on Physiology; Dr. Henry P. Loomis, Professor of Pathology, and Dr. Charles E. Quimby, Adjunct Professor of Practise of Medicine.

DR. ALLAN MCLANE HAMILTON.— It is announced that Dr. Allan McLane Hamilton, the well-known neurologist, has leased a house in London, and that hereafter he will practise for a portion of each year in that city; returning to New York in the autumn.

REGULATION OF THE MEAT MARKET.— At a meeting of the Board of Health held May 27th, the following resolution, proposed by Dr. Cyrus Edson, was adopted: "That no meat or dead animal above the size of a rabbit shall be taken to any public or private market for food until the same shall have fully cooled after killing, nor until the entrails, head and feet, (except of poultry and game, the head and feet of swine,) shall have been removed; nor shall the body or any part thereof of an animal which is to be used as food be carted or carried through the streets except it be covered, so as to protect it from dust, dirt or cold, and no meat or poultry shall be hung or exposed for sale outside of any shop or store in this city."

MAYOR STRONG VETOES THE BILL TO TRANSFER THE INDIGENT INSANE.—The bill which recently passed both houses of the Legislature transferring the maintenance of the indigent insane of New York County to the State, has failed to become a law owing to the fact that Mayor Strong did not give it his approval. It is stated that his opposition to the measure was to the clause which stipulated that before the transfer could be made the city would have to pay the $1,000,000 back taxes due to the State on account of the former State-care Act. Much regret has been expressed by Dr. Carlos F. MacDonald, the President of the State Commission in Lunacy, at the Mayor's failure to approve, as he believes it will be very difficult to carry a similar bill through another Legislature.

A LIBRARY FOR THE BLIND.— A free circulating library for the blind has just been incorporated in New York.

## Miscellany.

### AMBULANT TREATMENT OF FRACTURES OF THE LOWER EXTREMITIES.

AT the German Surgical Congress, von Bardeleben gave the results of the treatment of fractures of the leg at the Charité in Berlin since his last report, made in 1894. Since that time 74 cases of fracture of the lower extremity had been treated. Of the 46 fractures of the leg 39 were treated with the *Gehverband*. Of four fractures of the patella, two were treated with and two without walking apparatus. Of 23 fractures of the thigh, 16 received the ambulant treatment. In all, then, 181 fractures of the lower extremity have received the ambulant treatment at the Charité: 135 fractures of the leg, 7 fractures of the patella, 38 fractures of the thigh, and one compound fracture of the thigh and leg on the same side.

This method of treatment has a most favorable influence on the general condition of the patients. The time required for consolidation varies between 38 and 19 days, according to the nature of the fracture; in a single case of compound fracture 78 days were necessary to complete consolidation. The ambulant treatment, according to von Bardeleben, is a distinct advance, provided careful supervision is given to the cases while it is in progress.

### ANOTHER CASE OF COCAINE POISONING.

SCHEDE[1] has reported at a recent meeting of the Hamburg Medical Society a case of cocaine poisoning by the injection of two grammes of a ten-per-cent.-solution of this drug into the urethra. Cyanosis, dilatation of the pupils, and deep coma supervened, followed by trismus and tetanus-like convulsions. Artificial respiration was begun, and the subcutaneous injection of ether and camphor, and the inhalation of nitrite of amyl did not affect the symptoms. After twenty-five minutes, Cheyne-Stokes respiration supervened, and the cyanosis increased. Venesection produced no improvement. The inhalation of oxygen and intravenous injection of 650 grammes of salt solution finally brought the patient round, the recovery being attended by transitory convulsions, and three hours elapsing before complete recovery of consciousness. The lesson of this rather severe experience is the same as that of the case noted in the JOURNAL of April 18th, in which death resulted from a urethral injection, of six grammes of a five-per-cent. solution, namely, to employ weaker solutions, and exercise greater care as to the amount employed, above all in urethral injections. Although the amount of the solution employed in this last case was not excessive, the strength was certainly unnecessarily great. A peculiar susceptibility to the effects of cocaine may

[1] Munchner med. Wochenschrift, May 7, 1895.

exist when least expected, and the knowledge that it may exist should keep us always on our guard in the use of this excellent but poisonous drug.

## Correspondence.

### END OF A VACCINE VIRUS CONTROVERSY.

BROOKLINE STATION, BOSTON, June 1, 1895.

MR. EDITOR: — Under other circumstances, I would dislike very much to call your readers' attention to a matter concerning which so much legal controversy has arisen: but as it is important that they should not be deceived regarding the question of the legal successor of Dr. Henry A. Martin & Son, I am obliged at this time, to respectfully ask you to allow me to dispel any doubts on this point by printing the following decree:

FULL BENCH, SUPREME COURT OF MASSACHUSETTS.

FRANCES C. MARTIN, *Administratrix of the Estate of Henry A. Martin, vs.* EVERETT M. BOWKER. HOLMES, *Judge.*

This is a bill seeking to enjoin the defendant from using the name of Henry A. Martin in connection with the business of producing and selling animal Vaccine Virus.

The only use of the name which the defendant has made or threatened to make is to describe himself as "Dr. Everett M. Bowker, Successor to Dr. Henry A. Martin & Son."

The plaintiff relies chiefly on P. S. C. 76, Sec. 6, forbidding any person to "assume or continue to use in his business the name of a person formerly connected with him in partnership, or the name of any other person," without written consent, but we are of the opinion that the statute does not apply to advertising oneself as "formerly with" or "successor to" another. The word "assume" in the statute means use for the first time in the same way that is contemplated in the other branch, "continue to use in his business." This latter plainly means to use as part or all of the partnership name so as to indicate that the person named is a member of the firm.

Apart from the statute the plaintiff shows no ground for an injunction. The defendant is a successor to Dr. Henry A. Martin & Son. The history of the business is this:

Originally it was carried on by Dr. Henry A. Martin, and afterwards by him and his son, Stephen C. Martin, under the name of Dr. Henry A. Martin & Son. In 1876 the father retired, and the son became sole owner of the business by purchase and carried it on under the same name until his own death in 1893. By his will he left it, including the good-will as well as the apparatus and other assets, to his wife, after a life estate which has lapsed. The wife sold it to the defendant, and so far as she had power, gave him the right to use the style and description complained of.

Taking the strictest view of what is necessary to make a successor, there is no doubt that the defendant is one, and thus being so, he has the right to advertise the fact to the world.

Bill dismissed, May 21st, 1895.

Any breach of the above decree will be vigorously prosecuted.

Very respectfully,
EVERETT M. BOWKER, M.D.

### METEOROLOGICAL RECORD,

For the week ending May 25th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r.* | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S..19 | 30.17 | 48 | 53 | 43 | 67 | 76 | 72 | S.E. | S. | 5 | 9 | O. | F. | |
| M..20 | 30.08 | 56 | 68 | 45 | 64 | 41 | 52 | W. | W. | 6 | 9 | C. | O. | |
| T..21 | 30.17 | 54 | 57 | 50 | 51 | 74 | 66 | N.W. | W. | 7 | 8 | O. | O. | .01 |
| W..22 | 30.12 | 51 | 55 | 47 | 67 | 72 | 70 | N. | S. | 5 | 8 | O. | F. | |
| T..23 | 30.08 | 60 | 73 | 46 | 44 | 38 | 41 | W. | S. | 12 | 8 | H. | C. | |
| F..24 | 30.15 | 70 | 83 | 57 | 39 | 44 | 42 | W. | S.W. | 12 | 15 | C. | C. | |
| S...25 | 30.19 | 67 | 76 | 58 | 55 | 65 | 60 | S.W. | S. | 9 | 11 | F. | F. | |

☞

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 25, 1895.

| Cities. | Estimated population. | Reported deaths in week. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diphtheria and croup. | Measles. |
| New York | 1,956,000 | — | — | — | — | — | — | — |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 394 | 111 | 11.75 | 11.75 | 2.28 | 5.25 | 1.25 |
| Brooklyn | 1,013,000 | 382 | 128 | 8.38 | 18.46 | .76 | 4.94 | — |
| St. Louis | 540,800 | — | — | — | — | — | — | — |
| Boston | 501,167 | 193 | 53 | 11.34 | 14.58 | 2.16 | 2.70 | .54 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 75 | 24 | 4.00 | 9.31 | — | — | 2.66 |
| Cincinnati | 325,000 | 99 | 35 | 19.04 | 17.92 | 3.36 | 5.60 | 10.08 |
| Cleveland | 325,000 | — | — | — | — | — | — | — |
| Pittsburg | 272,000 | — | — | — | — | — | — | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 25 | 8 | 16.00 | 16.00 | 4.00 | 4.00 | — |
| Charleston | 65,185 | 33 | 9 | 15.15 | 3.03 | 3.03 | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 32 | 11 | 18.78 | 3.13 | — | 9.39 | — |
| Fall River | 92,233 | — | — | — | — | — | — | — |
| Lowell | 90,613 | 22 | 10 | 4.55 | 4.55 | — | — | — |
| Cambridge | 71,607 | 20 | 6 | 10.00 | 15.00 | — | 5.00 | — |
| Lynn | 65,123 | 20 | 5 | 10.00 | 20.00 | — | 5.00 | — |
| Springfield | 50,284 | 15 | 3 | 13.33 | 13.33 | — | 6.66 | 6.66 |
| Lawrence | 49,900 | 10 | 3 | 20.00 | 20.00 | 10.00 | — | — |
| New Bedford | 47,741 | 14 | 1 | — | 21.42 | — | — | — |
| Holyoke | 43,248 | — | — | — | — | — | — | — |
| Brockton | 33,839 | 5 | 0 | — | — | — | — | — |
| Salem | 33,155 | 15 | 4 | — | 20.00 | — | — | — |
| Haverhill | 32,925 | 6 | 1 | 16.66 | 16.66 | — | 16.66 | — |
| Malden | 30,209 | 7 | 3 | 14.28 | 14.28 | — | 14.28 | — |
| Chelsea | 29,806 | 9 | 1 | 11.11 | 22.22 | — | 11.11 | — |
| Fitchburg | 29,383 | 6 | 2 | 16.66 | 16.66 | 16.66 | — | — |
| Newton | 28,837 | 7 | 4 | — | 28.56 | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,954 | 5 | 2 | — | — | — | — | — |
| Waltham | 22,088 | 4 | 0 | — | — | — | — | — |
| Quincy | 19,642 | 4 | 1 | — | 75.00 | — | — | — |
| Pittsfield | 18,802 | — | — | — | — | — | — | — |
| Everett | 16,585 | 4 | 1 | — | 50.00 | — | — | — |
| Northampton | 16,331 | 6 | 1 | — | — | — | — | — |
| Newburyport | 14,073 | 2 | 0 | — | 50.00 | — | — | — |
| Amesbury | 10,920 | 3 | 0 | — | — | — | — | — |

Deaths reported 1,501; under five years of age 438; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 165, acute lung diseases 203, consumption 201, diphtheria and croup 67, diarrheal diseases 18, measles 21, scarlet fever 16, whooping-cough 10, typhoid fever 24, cerebro-spinal meningitis 3, erysipelas, malarial fever, small-pox, each 2.

From diarrheal diseases Brooklyn and Nashville 4 each. Philadelphia and Boston 3 each. Washington, Worcester, Lowell, Cambridge 1 each. From scarlet fever Boston 8, Philadelphia and Brooklyn 2 each. Nashville, Worcester, Lynn and Woburn 1 each. From whooping-cough Philadelphia 5, Brooklyn 3, Providence and Lawrence 1 each. From cerebro-spinal meningitis Providence, Worcester and Somerville 1 each. From small-pox Philadelphia 2. From erysipelas Brooklyn and Providence 1 each. From malarial fever Brooklyn and Nashville 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending May 18th, the death-rate was 17.5. Deaths reported 3,569; acute diseases of the respiratory organs (London) 240, whooping-cough 85, measles 69, diphtheria 52, diarrhea 50, fever 27, scarlet fever 19, small-pox (Liverpool) 1.

The death-rates ranged from 12.3 in Croyden to 28.7 in Preston, Birmingham 16.9, Bradford 17.5, Cardiff 15.1, Gateshead 13.6, Hudderfield 19.9, Leeds 15.7, Leicester 15.3, Liverpool 23.2, London 16.5, Manchester 25.7, Newcastle-on-Tyne 18.6, Nottingham 16.1, Oldham 22.2, Portsmouth 14.0, Sheffield 15.2, Sunderland 15.9, West Ham 15.0.

### OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 1, 1895.

T. C. WALTON, medical inspector, ordered to examination preliminary to promotion as medical director.

G. S. BEARDSLEY, B. H. KIDDER and W. K. VAN REYPEN, medical directors, ordered as a board to examine medical officers for promotion.

N. L. BATES, medical director, J. M. FLINT, medical inspector and J. D. GATEWOOD, passed assistant surgeon, ordered as a board to revise the "Book of Instructions for Medical Officers."

## AMERICAN LARYNGOLOGICAL ASSOCIATION.

The Seventeenth Annual Congress will be held in the Chamber of Commerce, Rochester, N. Y., June 17, 18 and 19, 1895. The profession is cordially invited to attend.

MONDAY, JUNE 17th.

*Morning Session.*— President's Address, John O. Roe, M.D., Rochester. Foreign Bodies in the Esophagus, Harrison Allen, M.D. Desiccated Thyroids in Goitre, E. Fletcher Ingalls, M.D. The Influence of Chronic Diseases of the Throat upon Certain Defects of Speech, D. Bryson Delavan, M.D. Electrolysis by a Current Controller for the Reduction of Spurs of the Nasal Septum, W. E. Casselbury, M.D. Is Acute Tonsillitis in any way Dependent upon the Rheumatic Diathesis? Geo. B. Hope, M.D.

*Evening.*— President's Reception.

TUESDAY, JUNE 18th.

*Morning Session.*— Some Remarks on Removal of the Tonsils, and Case of Lipoma of the Larynx, J. W. Farlow, M.D. A Case of Melancholia cured by Intra-nasal Operation; and a Case of Suppurative Ethmoid Disease, followed by Invasion of the Sphenoidal Sinus, Abscess of the Brain and Death, F. H. Bosworth, M.D. A Consideration of Some of the More Important Principles of Intra-Nasal Surgery, W. K. Simpson, M.D. Ludwig's Angina, J. E. Newcomb, M.D. Discussion on Tuberculosis of the Upper Air-Passages: Etiology, Jonathan Wright, M.D.; Diagnosis, C. C. Rice, M.D.; Treatment, E. L. Shurley, M.D. and J. W. Gleitsmann, M.D.

*Evening.*— Annual Dinner of the Association at 7.30 P. M.

WEDNESDAY, JUNE 19th.

*Morning Session.*— Cyst of the Maxillary Sinus, Chas. H. Knight, M.D. A Case of Abscess of the Frontal, Ethmoidal and Maxillary Sinuses, J. H. Bryan, M.D. Necrosis of the Middle Turbinate, and Congenital Osseous Stenosis of the Naris, A. B. Thrasher, M.D. A Naso-Pharyngeal Cyst; an Oro-Pharyngeal Cyst; and Fibroma Papillare, or True Papilloma, of Nasal Septum, Jonathan Wright, M.D. Discussion on the Relation of Vasomotor Disturbances to Diseases of the Upper Air-Tract, by F. H. Bosworth, M.D., W. H. Daly, M.D., and J. N. Mackenzie, M.D.

CHAS. H. KNIGHT, M.D., *Secretary.*

147 W. 57th Street, New York.

## ONTARIO MEDICAL ASSOCIATION.

The Fifteenth Annual Meeting will be held in the Council Buildings, corner Richmond and Bay Streets, Toronto, on Wednesday and Thursday, June 5th and 6th, commencing at 10 A. M., on Wednesday.

PRESIDENT'S ADDRESS, R. W. Bruce Smith, Hamilton.

PAPERS BY GUESTS.— Intestinal Complications in Gynecic Surgery, J. B. Murphy, Chicago. Embryonic Remains in Cases of Eczema of the Navel, Robert T. Morris, New York. Operative Treatment for Bronchocele, Francis J. Shepherd, Montreal. Laryngeal and Tracheal Tuberculosis — The Importance of their Early Recognition and Treatment, F. W. Chappell, New York.

DISCUSSION IN MEDICINE.— Diphtheria, W. J. Wilson, Richmond Hill; followed by G. M. Aylsworth, Collingwood, and J. T. Fotheringham, Toronto.

DISCUSSION IN SURGERY.— Delayed Union in Fractures, Geo. A. Peters, Toronto; followed by I. H. Cameron, Toronto, and A. McKinnon, Guelph.

DISCUSSION IN THERAPEUTICS.— The Physiological and Therapeutic Action of Iron, with a discussion of its newer Pharmaceutical Compounds, H. A. McCallum, London; followed by J. H. Sangster, Port Perry, and A. T. Rice, Woodstock.

DISCUSSION IN OBSTETRICS.— The Primary Repair of Genital Lesions of Child-birth, K. N. Fenwick, Kingston; followed by H. Meek, London, and H. T. Machell, Toronto.

PAPERS.— The Present Position of Antitoxin in the Treatment of Diphtheria, Chas. Sheard, Toronto. Antitoxin in the Treatment of Diphtheria, with Clinical Notes of Cases, J. D. Edgar, Hamilton. Calomel Fumigation in the Treatment of Diphtheria, T. F. McMahon, Toronto. Phlegmasia Dolens, Report of Cases, J. Campbell, Seaforth. Constipation, H. Arnott, London. Treatment of Pulmonary Tuberculosis, D. Marr, Ridgetown. A Few Remarks on Home and Foreign Climate in Consumption, E. Playter, Ottawa. Science in Medicine, F. Oakley, Toronto. Hydrotherapy in the Treatment of Exanthematous Fevers, A. K. Sturgeon, Petrolia. Inflammations of the Optic Nerve, their Causes and Prognosis, G. S. Ryerson, Toronto. Cataract, R. A. Reeve, Toronto. A Case of Pneumo-Peritoneum, C. J. Hastings, Toronto. Puerperal Insanity, N. H. Beemer, Mimico. Narcotic Addiction, D. Lett, Guelph. Notes on Paresis, Ezra H. Stafford, Toronto. Use of the Stomach Tube, G. Hodge, London. A Case of Scurvy in a Child, H. T. Machell, Toronto. A Case of Progressive Unilateral Facial Atrophy, T. F. McMahon, Toronto. A Case of Morphœa, A. McPhedran, Toronto. Notes on an Epidemic of Herpetic Tonsillitis, J. R. Hamilton, Port Dover. The Antiseptic and Eliminative Treatment in Typhoid Fever, W. B. Thistle, Toronto. Traumatic Hysteria, D. C. Meyers, Toronto. Currents and Counter Currents in Therapeutics; or, a Plea for Rationalism in the Treatment of Disease, J. H. Sangster, Port Perry. Intelligent Use of Rectal Injections with Improvement of Ordinary Enema Syringe, P. P. Burrows, Lindsay. Some Remarks on Pneumonia, with Report of an Interesting Case, R. V. Bray, Chatham. Metallic Sutures in Fracture of the Patella, J. J. Cassidy, Toronto. Cases of Post-Pharyngeal Abscess, Double Cephalhematoma, Leucoma, Colitis, etc., G. Acheson, Galt. Traumatic Septicemia, J. C. Mitchell, Enniskillen. An Operative Procedure for Spina Bifida, H. Howitt, Guelph. Intestinal Anastomosis, with Murphy's Button, J. L. Davison and L. Teskey, Toronto. A Case of Anterior Abdominal Nephrectomy for Calculus, with Patient, L. MacFarlane, Toronto. An Operation for Hair-Lip, A. Groves, Fergus. A Case of Ectopic Gestation, and a Case of Mental Aberration following Removal of an Ovarian Cyst, W. J. Gibson, Belleville. Tumors of the Bladder; Report of Cases, F. LeM. Grasett, Toronto. Seminal Vesiculitis, E. E. King, Toronto. Foreign Bodies in the Knee-Joint, G. Bingham, Toronto. Modern Experimental Surgery on Man and Woman; A Criticism of Operations done and the Results obtained, J. F. W. Ross, Toronto. The Use of Ichthyol in Gynecology, L. Sweetnam, Toronto. Use of the Projection Microscope in the Teaching of Anatomy, A. Primrose, Toronto. Display of Bacteria, J. Caven and F. N. Starr, Toronto. Notes on Carcinoma, H. B. Anderson, Toronto.

A luncheon at the New Yacht Club (City), will be tendered by the City members of the Association, to all members present at this meeting, on Thursday, June 6th, at 1 P. M. A yacht trip will follow the luncheon.

JNO. N. E. BROWN, Toronto, *General Secretary.*

## SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.— The Annual Meeting of the Society will be held on Tuesday, June 11, 1895, at 11 o'clock, A. M., in the hall at 19 Boylston Place, Boston.

The usual business of the Annual Meeting will be transacted, and the following communications will be presented:

"The Anatomical Evidences of Death by Drowning," by G. DeN. Hough, M.D., of New Bedford.

"A Case of Criminal Abortion with Peculiar Features," by W. S. Birge, M.D., of Provincetown.

F. W. DRAPER, *Recording Secretary.*

## RECENT DEATHS.

SIR GEORGE BUCHANAN, M.D., F.R.S., late principal medical officer of the Local Government Board of Great Britain, and Chairman of the Royal Commission on Tuberculosis, died on May 5th. He had been in failing health for some time, and had postponed submitting to an urgent operation in order to finish the report of the Royal Commission on Tuberculosis. He was operated as soon as possible after the report was issued, but died on the eighth day. His courage and devotion to duty could hardly be shown in a more striking way than by the manner of his death.

ARTHUR E. DURHAM, F.R.C.S., consulting surgeon to Guy's Hospital, died May 7th.

## BOOKS AND PAMPHLETS RECEIVED.

Some Observations Concerning a New Test for the Detection and Quantitative Estimation of Free Hydrochloric Acid in the Gastric Juice. By Julius Friedenwald, A.B., M.D., Baltimore, Md. Reprint. 1895.

The Prevention and Treatment of Ophthalmia Neonatorium, and the Necessity for More Efficient Legislation to Prevent Blindness from this Cause. By Charles H. May, M.D., New York. Reprint. 1895.

Abstract from the Second Annual Report of the Dairy and Food Commissioner of Pennsylvania, Report of Analytic Work. By Henry Leffmann, A.M., M.D., Chemist to Dairy and Food Commissioner of Pennsylvania.

The Pre-tubercular and Pre-bacillary Stages of Consumption. A Consideration of the Early Diagnostic Signs of Pulmonary Tuberculosis — A Plea for the Recognition of Premonitory Symptoms. By Charles Manley, A.M., M.D. 1894.

Typhoid Ulcer: Perforation (?), Operation, Death. Cerebral Cyst: Operation, Recovery. Direct Fixation in Fractures. Dislocation and Double Fracture of the Upper Third of the Humerus. By B. Merrill Rickets, M.D., Cincinnati, O. Reprint. 1894-5.

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## Address.

### THE PHYSICIAN'S EXTRA-PROFESSIONAL DUTIES.[1]

BY ALFRED WORCESTER, A.M., M.D., WALTHAM, MASS.

On this one day of the year when we leave our patients to the restorative care of Nature, now so beautiful and bountiful, it seems not unfitting that we should ourselves turn from strictly professional themes towards our other interests.

And I am the more inclined to this course by my inability to present any deductions from my own experience in general practice which would be worthy of this occasion. Let us then give this hour to the consideration of our extra-professional duties.

However right it may be under other governments for professional men to devote themselves exclusively to their professions, under our form of government such seclusion is not justifiable. I need not speak of the common duties of citizenship that we share with the laity, for such political duties however much neglected, can hardly escape recognition.

But I call your attention rather to those duties of citizenship belonging particularly to us as physicians, and yet not sufficiently recognized.

As our civilization becomes more complex the different duties of citizenship become less plain but not the less binding. In earlier and simpler stages of social growth these different duties are very plain. Thus, in colonial life, where the common welfare depends upon every man's doing each his part, there can be no question as to the respective public duties of the carpenter, the lawyer and the physician.

In the struggling out-posts of civilization it is not allowable for any one to shirk his share of public work; nor can any waste of power be afforded. Accordingly the carpenter is expected to direct the building of the stockade, and the lawyer must give part of his time to the shaping of the public statutes.

Nor can there be any doubt as regards the nature of the physician's public duties. Plainly he must give to the community the benefit of his special knowledge in matters of public hygiene, and he must also take professional care of all who are dependent upon public support.

This, in the present age, means that the physician must give his best advice about the water-supply and about the disposal of sewage and garbage; that he must also give attention to the educational interests of the colony — not only guarding the healthfulness of the school-children but seeing that some of them are being fitted to be his assistants and successors; and even more plainly it means that he must lead the fight against all contagion and infection, and that he must plan a hospital and devote himself to its management.

As the community, which we are now imagining, grows larger, and as many physicians follow the footsteps of the individual pioneers, these special duties of citizenship do not rest upon all the members of the profession at one and the same time, but may very properly be borne in turn. And further on in the growth of the community these extra-professional duties may be specialized and thus divided among the increasing number of physicians.

Still later in the process of development only a few of the whole number of the physicians may be needed in the public service, and then there naturally results a loss of individual responsibility for any share of the public duties that rest upon the profession as a whole.

But there can never come a time in the advance of a republic when any profession can be released from the obligation of public service. Most especially is this true of our profession.

Nor is it only a public loss when the medical profession fails in giving to the public service its due measure of devotion. For, in the charitable judgment of the people, if physicians do nothing for the State, then presumably it is not from their neglect but from their general inability and inefficiency outside of their special province. There thus results to the profession as a whole a distinct loss of influence and of usefulness.

How fitting then it is, on this occasion when we meet together for renewed inspiration in our life work, that we should consider these extra-professional duties. Let us at least look them in the face. And let us see in what ways existing conditions might be improved by a larger devotion on the part of physicians to the public service.

Bearing in mind that the physician's public duty comprises those functions of government for which his education and experience have especially fitted him, and which cannot so well be performed by the laity, we find these functions dividing naturally into three classes:

I. The direction of educational processes, so far as the physical welfare of the public scholars is concerned, and also so far as special education is carried into any part of the wide domains of our profession.

II. The care of the physical well being of all, either temporary or permanent wards of the town or State.

III. The legislation and the administration necessary in eliminating all infectious and contagious diseases.

I. The schools of Massachusetts in the past have very justly been the pride of the State. From the earliest days when the feeble Bay Colony gave so freely of its scanty store to the founding of Harvard College "in yon dim unventured wood," no expense has been spared to increase the efficiency of the public schools. And yet from our point of view is their present condition what it should be?

Is it creditable at this late day that school-children should be promoted from class to class without regard to their physical, but solely according to their mental accomplishments?

After such efforts as have been spent in perfecting the system that produces uniform mediocrity out of natural diversity, is it not high time for more attention to the easier problem of giving fairly well shaped bodies to the boys and girls who so soon will be the men and women upon whom our race depends. At least, is it not time for precautions against the actual damage of the scholars' bodies while their minds are being improved?

Shall tuberculous children continue to be huddled together with the healthy in improperly ventilated school-rooms, and shall the regular increase of diphtheria and of scarlet fever, that now comes with each school-year, continue to rob the State of her boys and girls? Surely it is possible to prevent the attendance of desquamating children and to separate the tuberculous scholars from the healthy. At least, the school-

[1] The Annual Discourse before the Massachusetts Medical Society delivered at the One Hundredth and Fourteenth Anniversary, June 12, 1895.

rooms could be kept scrupulously clean; the misnamed "sanitaries" could be made decent; and the dangerous modern custom of giving the old, soiled school-books to the new comers could be rescinded.

If the question be asked why such reforms are not at once inaugurated, the answer is easy. The school authorities do not understand the importance of taking such radical steps as would be necessary.

It must be remembered that we are descended, and not so very remotely, from ancestors who were not afraid of dirt. Cleanliness, though long held to be next to godliness, has not been considered pre essential. Nor has dirtiness been thought incompatible with finest scholarship. The love of cleanliness is an acquired taste not yet possessed by all of our race. And school-teachers who themselves hate dirt, hesitate to interfere with the independence of families who appear to hate bodily cleanliness. And, again, if the teachers should dare to insist upon having clean scholars, they have at hand no facilities for carrying out the reform.

School-books are freely given, out of the public purse, upon the subjects of physiology and hygiene, but soap and towels and bath-tubs are not provided. How can hygienic principles be inculcated where their application is impossible?

Such provision may not as yet be demanded by public opinion; nor is the half of what at present is taught in the schools so demanded. But were the people and their school-committees alive to the dangers that lurk in the dirt and in the noisome air of the school-rooms, there would soon be a national house-cleaning of the schools.

Now, physicians know, as others do not know, that dirt is dangerous, and that foul air is even more to be feared. They also know that many of our endemic infectious diseases are propagated in the public schools. Physicians are therefore in duty bound to work for the remedying of these evils.

Moreover, physicians are especially able to foresee the advantages that would result from greater attention to the physical growth and well-being of the school-children. Surely it need not be that the graduates of one school in this great country will always be distinguished from others by their splendid carriage. Each High School in Massachusetts could give at least this much of a West Point training. Not by the scanty, spiritless teaching of gymnastics, nor by the perverted sports of the present age, but by a reasonable share of the time and attention now given to far less valuable training, the public schools could certainly improve the bodies as well as the minds of our children.

For the inauguration of such a reform physicians are the natural leaders. True, such leadership is likely to carry the physician into local politics, where the scholar is not always welcome, but where least welcome the most needed. After thorough acquaintance with the actual condition of the schools in his district, and with the best conditions elsewhere, it is the physician's duty to persuade the school-committee, if possible, of the necessity of improving the hygiene of the schools. This failing, then he must reform the school-committee; and this means that he himself must be willing to serve on that committee, caring neither for any threatened unpopularity at the polls nor for any hostile criticism of his best endeavors. His efforts may not at first avail. Much that is disagreeable is likely to be encountered. Public service is generally thankless; and it is to no easy enjoyment that the high duty of citizenship invites us. Nevertheless, the obstacles to reform are not so mountainous as at first they appear. The people, however much they may indulge in grumbling and in cheap newspaper abuse, are yet not slow to follow good leadership. Parents who at first object to innovations that affect their children and their purses are, nevertheless, quick to recognize real improvements. Moreover, the times are fast ripening for thorough reforms in the public-school system. Parents are learning the dangers of infection. When the school-bell rings for their children, they hesitate as never before to let them go. And if the medical profession could be prevailed upon to devote especial attention to the healthfulness of the schools, there would be general rejoicing.

Before leaving this subject we should note the fact that teaching is one of the obligations resting upon all professional men. Galen's famous oath requires every physician to impart his knowledge to the generation following. And although the medical student of to-day has no preceptor, and although the *science* of medicine is so splendidly taught in the great school close by, yet we must not forget the obligation resting upon us to pass on to others, in the measure we have ourselves received, the art of healing.

True, it may nowadays be somewhat awkward for the old physician to find room in the young graduate's head for any hints as to the treatment of patients. But, on the other hand, if our elder brothers, instead of combating the germ theory, would only teach us what they have learned about patients in life-long practice, if they would teach us what they have learned of comfort's art, then we should be nearer our professional millenium.

It is not, however, only to medical students and to younger physicians that we are under bonds. To the laity we are even more bounden to teach the healing art, so far as we can, to all who are willing to learn it.

We hear nowadays of political campaigns of education directed against financial heresies. Of far greater use would be common-sense crusades against the ignorance and superstition that now so flagrantly defy physiological laws.

In earlier times, when everybody knew all about everybody else, the village doctor was also in truest sense a teacher of his art, for then his precepts as to the care of the sick were widely known. Bedside watching was in vogue, and the physician's minute directions were faithfully followed by the kind neighborly nurses and treasured by them for subsequent use.

Such times are gone by. The art of nursing is no longer a matter of inheritance or of tradition. In place of the neighbors we have nurses now who have devoted their lives to this work. They take the place of the physician's private students, who formerly in return for their instruction gave great assistance. In the same way these modern nurses look to the medical profession for instruction. And every physician, both for his own interest and for his patients', ought to do something towards their training. Even in the smaller towns this great work should be undertaken. Otherwise only the rich patients can be properly cared for, whereas under the former *régime* the sick poor fared as well as the rich. This is a matter for most serious consideration. The most effective opposition

to socialism and anarchy can be made by removing every such injustice. Rank and fortune ought not to flourish where love and charity for the sick neighbor die out.

I beg you to think of this. Call to mind your poorer patients who suffer for nursing which is now entirely beyond their reach. Think also of the many young women who would gladly and gratuitously do this nursing under your instruction, if only you would undertake their training. And then remember that fine old saying, *Noblesse oblige*, or, superior advantages bind to larger liberality.

A very mistaken idea has become current that nurses can be properly taught only in the large hospitals. Of course, it is quite true that nurses *for* hospitals must be trained in hospitals. But for private nurses such training is not by any means sufficient. The new profession of nursing did not originate in large hospitals nor in great cities. And in the original schools, hospital work is still only one of the many departments in which the nurses are trained.

The best nursing service in any community can be secured only by the efforts of the physicians in practice there. In the smallest towns, where as yet a training-school is not feasible, great advantages can nevertheless be obtained by the co-operation of the local physicians with the nearest nurses' school. Such affiliations are happily fast multiplying throughout the State. And even greater blessings will result as physicians more generally recognize their obligations as teachers of nurses.

II. In founding and in carrying on hospitals it would naturally be thought that physicians would be the leaders.

Within the last few years, as you well know, there has been a great increase in the number of hospitals in this country. And even in many of the smaller towns hospitals are now being projected. As the greater efficiency and safety of hospital treatment become more widely known, and as the many advantages of cottage hospitals become apparent, Christian charity more and more readily manifests itself in this form. The old time neighborliness and kindness is not lost, but in the hospital has become organized and centralized.

Physicians know best these and other great advantages; they know how rapidly modern surgery advances where hospital facilities exist; they know how effective isolation wards are in fighting epidemics; and they know best the blessings that the hospital affords for the otherwise homeless sick and injured.

And physicians also know best the requirements that must be fulfilled in the erection and in the management of the hospitals best suited for their different localities. Why is it then that the new hospital movement in Massachusetts is not everywhere being guided by the Fellows of this Society? True, in some places such is the case, but in many other places the hospital movement encounters either the opposition or the apathy of the medical profession. Too often it happens that the physicians whose co-operation is sought, unless given dictatorial power, sulk in their tents. This comes from not being accustomed to public service, or from ignorance of American institutions. Dictators do not flourish here. And the people, who are the rulers, can be persuaded but not driven. If the first physicians are not willing to work with the hospital leaders, then they can meekly work for them or let others do so after the hospital is in running order. This they do in some of our cities. And in natural consequence we find one of the newest hospitals built without an operating-room, because, forsooth, the need of it was not suggested to the building committee. In several other hospitals the Fellows of this Society accept appointments on "mixed" or "double" staffs, where the different schools of practice are said to be represented, and where the rules and regulations for their guidance are drawn by lay managers. This they do "for the sake of harmony," and because of their conviction that except for such compliance on their part there would be either no hospitals or only homeopathic hospitals possible in these communities. But do they not thus overlook the fact that this compliance on their part formally recognizes and so perpetuates the false distinctions which we all so devoutly wish to have obliterated.

The roots of this modern difficulty lie buried in the indifference of physicians as regards their extra-professional duties. After hospitals have been inaugurated without the encouragement and guidance of those best fitted to guide such undertakings, then it may be necessary to accept the dictation of those who know no reason why patients at the hospital door should not be asked if they prefer homeopathic or allopathic treatment. But where the Fellows of this Society assume their rightful position in the community, where they show their hearty willingness to do their full share of public work, such awkward predicaments do not arise. In such places there is no necessity for accepting distinctions and designations that ought not to exist, but instead there is grand opportunity for demonstrating that perfect liberality which should be our greatest pride and glory.

Of far more importance, however, than any question of medical ethics is the duty of the physician as a public-spirited citizen to see that proper care is given to those for whose care the community is responsible. Not only in the hospitals, but even more in the asylums and in the almshouses a constant watchfulness is needed to ensure for the unfortunate the best care that a constantly increasing enlightenment makes due to them. Nor can such oversight be relegated solely to officials, who indeed are the least able to secure even the reforms that they desire. In the almshouse infirmaries of England the sick and dying paupers have long had the best nursing that the kingdom can supply. Why should not the aged and the impoverished of Massachusetts in their sufferings and in their last hours on earth have like blessings?

The people, if fully informed, would not let their enfeebled neighbors in the almshouse suffer for lack of improved methods of treatment or for lack of proper appliances for their relief and comfort. Nor would the people, if they knew it, allow delicate orphans to be educated by the harmlessly-insane paupers. Again, if the people heard the sorrowful tales told to the officials in the outside poor departments of our cities — if the woes due only to sickness among the poor were generally known in the community — then there would be far less misery. But in our crowded, hurried life those who can give help and would willingly give it, do not actually see the needs. The physician is in the best possible position to bring into relationship the helpers and the helpless. Difficult as is the great question of alms-giving, in cases of physical helplessness there can be no question. Suffering obliterates

all social distinctions. As regards the able-bodied paupers, let the professional scientific philanthropists have their way; but for the sick and the dying, for the maimed and the feeble-minded, let us follow the prompting of our hearts! Of course, there is here great need of good leadership. At the outset there is need of professional skill in discovering the extent of the physical suffering and helplessness, and in pointing out the proper measures for relief. It is the physician's public duty also to strive for the execution of these needed measures. He must follow the footsteps of Dorothy Dix. Her work was that of a true physician who recognizes his extra-professional duties.

III. The greatest advance ever made in medical science has been made during this last third of the century in making possible the prevention of many of our most dreaded diseases. Indeed, it may almost be thought that sanitation is a new science quite distinct from the science of medicine. But in reality there is no such separation, and the prevention of diseases will always be only a special department of our profession. The apparent separation is owing mainly to the fact that the sciences of organic chemistry and of bacteriology, which are the foundations of hygienic science, are younger than the leaders of the medical profession. Comparatively few physicians have had opportunity for such studies, and in consequence the profession as a whole has not grasped the glorious opportunities which the microscopes have already revealed. Even where attempts have been made to realize these advantages, disappointments have often resulted. Surgeons have clutched at the shadows of great principles. Too often they have trusted to antiseptics regardless of the essentials of asepsis, the new-found goddess of hygiene.

After such wondrous revelations as to the causation of diseases it might perhaps be expected that a whole generation of physicians must go and come before the full advantages of these great discoveries can be realized. But it need not be so long.

There is no sense in the separation that exists today between the physicians in active practice and their brothers in the laboratories. Theory and practice must always go hand in hand if either is to be of greatest use. The bacteriologist, if he gives not half his heart to the widest clinical application of his knowledge, will lose his highest inspiration. And the busy practitioner who aspires to the highest fulfilment of his mission must now keep in touch with the searchers in the dimly-lighted world of germs.

The common meeting-ground for bacteriologists and for physicians and surgeons can be found in hospital work and also in the work of health boards. Fellows of this Society should never forget that Massachusetts owes her pre-eminence in public sanitation to the efforts of our former Fellow, the late Dr. George Derby, who organized our State Board of Health — the first in this country, if not in the world. I need not remind you of the great work now being done by this board under the guidance of its distinguished chairman and untiring secretary. But I ask you if the local health boards in our cities and towns deserve corresponding credit. The answer is shameful. The trouble is, that the men best fitted to operate this splendid machinery have not given to the Commonwealth that devotion she has the right to expect from all her sons. No grander opportunity has ever been offered to the medical profession than this of directing the work of public sanitation. Health boards have been authorized by the State in every city and town.[2] To these boards the State has granted almost dictatorial power, and yet in more than one-third of our towns no health boards have been formed. One of these derelict towns has over 10,000 population. Although many of them are small, that is no excuse for sanitary obtuseness. Where the community has been properly taught the importance of public sanitary work, such work has been cheerfully supported. And yet, in spite of the provision that in the larger towns one member of the health board shall be a physician, so negligent have we become of our extra-professional duties, that in many towns it has been almost impossible to persuade any physician to serve on the board of health, and in many other towns only second-rate men undertake such service. The best physicians say they have not the time, or they shun the notoriety and the possible unpopularity. As a necessary result the local health board too often lacks the confidence of the public and the co-operation of the medical profession.

Already, however, there are signs of improvement. Within the last few years the local health boards have formed a State Association for mutual improvement; and during the past year there has been a distinct advance in the co-operation of the bacteriologists and practising physicians. For this we are in part indebted to the City Physician of Boston, Dr. J. H. McCollom, who for many months generously gave his services to the physicians of this vicinity in determining for them the presence or absence of the diphtheria bacillus in suspected throats. Already in several other cities similar work has been undertaken. But is it not discreditable that this investigation of diphtheria is not being carried on in every city and town? Surely the health board in every community ought to provide for such work. Then might this modern curse of diphtheria be fought to some purpose. If not exterminated, at least it might be "in straiter limits bound."

Leprosy and small-pox have been conquered; and, as a crowning triumph of sanitation, the last invasion of Asiatic cholera was repelled from our shores. Why should we not also drive out every infectious and contagious disease? At least, the complete disinfection of materials — dwellings, furniture and clothing — is possible and practicable. In other countries disinfecting stations are so well arranged that a private house or a school-house or a factory can be promptly and thoroughly disinfected. This is done for the good of the public and, of course, at the public expense. Why should this not be done in Massachusetts? Why should we longer allow the public to be fooled with the useless fumes of sulphur?

Ever since the pilgrims, perhaps in consequence of their previous close confinement on shipboard, succumbed in such frightful numbers to the "white pestilence," pulmonary tuberculosis has maintained in New England its deadly pre-eminence.

Until Koch's discovery of the bacillus of the disease settled all questions of diagnosis, the physician might have been excused for sharing with his patients at first that feverish hopefulness so characteristic of the early stages, and afterwards the absolute hopelessness that so long precedes the end. But now there is no excuse for such professional helplessness — at least the disease must be recognized. In the early stages there is undoubted opportunity for cure. In the middle stages

[2] Chapters 218 and 473, Acts of 1894.

there is still a fair chance. And in all stages of the disease there is the absolute necessity of preventing the infection of others.

The modern treatment of tuberculosis and of diphtheria, as well as the recognition of these diseases in their earliest stages, depends largely upon bacteriological work which very few physicians have time and facilities for doing. One central laboratory, however, can easily serve a great many practitioners. And such laboratories should be organized, so that these modern weapons against infection may be freely placed in the hands of every physician in the State. This is the proper work of the boards of health. But how can such work be done except under the direction of the highest medical intelligence? No better illustration could be offered of the importance of our extra-professional obligations.

Massachusetts has taken another of her great forward steps in exterminating tuberculosis from our herds of cattle. No longer is it unavoidable that the seeds of this disease shall be given to our children in their daily food. Would that we also kept the germs out of the air that they must breathe!

True, it is a gigantic task that confronts us. Patients already infected with tuberculosis cannot be segregated as lepers are, and yet much might be done both for their relief and for the greater safety of others. Hospitals for diseases of the throat and chest might be established in our pine woods, in imitation of Sharon, and in our hill townships as well. Such sanitariums, properly equipped and properly managed, would effect the cure of thousands now doomed to die for lack of salubrious surroundings and modern treatment. To other thousands, already far advanced consumptives, such hospitals would give every possible chance, and at any rate give great comfort and relief; and at the same time, by bringing such patients under intelligent superintendence, much would be accomplished in preventing the further spread of the disease. Such measures, it is true, would entail a great outlay of public money. But the investment would bring most blessed returns. By affording every possible comfort to the hopelessly sick, and by giving to those who cannot afford either a change of climate or expert professional attention, the best hygienic surroundings and the recently greatly improved medical treatment, the State would have the moral right to require the stricter quarantine that is so important.

Tuberculous and healthy children should not be allowed to attend the same schools. For the tuberculous even better schools should be provided, and might well be afforded by any community where the safety of the young is properly valued. Tuberculous operatives should not be allowed at the same benches nor in the same crowded rooms with others. In any shop or factory it would be wise economy for both proprietors and employés to arrange for this separation even by pensioning the afflicted.

But the separation necessary to prevent the spread of tuberculosis among school-children and operatives is only a small part of what sooner or later must be undertaken in every enlightened community. It is even more necessary to educate every tuberculous patient to such personal habits as will prevent repeated auto-infection, and at the same time ensure the safety of other members of the family and of the public.

That our foe is so mighty, so insidious and so firmly intrenched, ought to make us all the more eager to begin the fight. We must look out, too, that we stand shoulder to shoulder. Individual efforts will count for nothing. Even a single city or town could do little more than to set the example.

Plainly the lead must be taken by the health boards of the State, working in unison. This co-operation can be secured only by a greater devotion of the physicians in the public service. It is in this sort of extra-professional work — in stimulating the health boards to united, vigorous action — that physicians now have grand opportunity for usefulness.

We have now briefly considered three departments of public service where the knowledge and experience of physicians is greatly needed, in order to provide for all our people the advantages that now separately may be had here and there in other countries.

Under monarchical governments we might petition the king and his councillors for these reforms. But in a republic, reforms originate not in professional petitions, but in popular demands. The people are willing to be persuaded, and must be persuaded before they undertake reforms. Direct responsibility, therefore, rests upon those who alone are able to lead such movements.

In the evolution of this country we have not yet attained the condition of a perfectly representative government. And it is only in the higher development of this grand policy that our national hopes safely rest. Geographical sections may be represented, and voting districts may already be numerically equal, even political parties may be justly represented, but real representative government requires also that each class and profession and trade shall be represented. Such government, so far as our profession is concerned, can easily be obtained by concerted action. And one of the functions of the District Societies, and especially of the local circles of Fellows ought to be the nominating of our representatives for public service in those departments where the help of our profession is needed. Such nominations would have the binding force that honor always imposes. And the physician's public service would be far easier if undertaken at the request of his professional brethren.

But it is not enough that we strive merely to secure the election of our professional representatives. It is even more important that we shall take a greater interest in the public work. One of the sections of our annual meeting might very profitably be devoted to sanitary science. Public measures that especially concern the medical profession should be discussed; and our opinions as physicians should be made known at the proper times, that is, in the formative stages of legislation when such opinions may be of some use. There would then be less ground for pessimistic criticism of school and hospital and health boards.

The three great needs are, first, an individual recognition of our responsibilities for extra-professional or public service; second, concerted effort to secure proper professional representation in the government; and, third, a continued interest in the public service of our Fellows for their encouragement and support.

It may not be uninstructive for us to look at the amount of public service now being done by the nearly two thousand Fellows of this Society, who are practising medicine in two hundred and forty of the cities and towns of Massachusetts. Twenty-five are serving on school-committees, and twenty-five others are serving on health boards.

In pointing out our present failures in these respects, I should not be forgiven if I did not make honorable exceptions. I see before me many of our older Fellows who in previous years have nobly earned exemption from further public service. It was their privilege to serve our country in the dark days of her sorest need. They gave freely of their youth and of their prime. No words of ours, at least in their presence, can fittingly express our joy and pride in having these heroes in our ranks. May they long enjoy our love and honor and gratitude!

And there were others, the comrades of our living heroes, who returned not from the battle-fields, but who there gave to our country the last full measure of devotion. At this memorial season it is especially fitting that we should hold them in remembrance. Nor could any anniversary of this Society be complete without their commemoration. Their lot it was to die in the midst of the nation's travail. For them there was no rejoicing over the new birth of perfect freedom, and over the restoration of the Union. But, like Dr. Warren, whose life-blood shed on yonder hill still quickens the pulses of patriotism, so these brave war surgeons, whose bones lie in the Wilderness, on the hills of Gettysburg, or in the swamps of the Chickahominy, have bequeathed to us the priceless blessing of noble examples.

Shall we prove ourselves worthy of our inheritance? In times of peace and prosperity shall we begrudge giving some small portion of our time to the public service in which they gave up their lives? Rather, as we return to our routine responsibilities, shall we not also willingly assume our extra-professional obligations?

I plead in behalf of anxious parents, who would give their all to ensure the health of their children, but who do not know as you know, in what ways this might be done. I plead in behalf of the distressed, for whom the public would gladly do more if only the way were pointed out. And, finally, I plead in behalf of generations yet unborn, that this dear land of ours shall be more jealously preserved from contamination, in order that the Commonwealth of Massachusetts for the coming ages may be the healthful home of succeeding generations.

God grant that it may be so!

## Original Articles.

### AN EXAMINATION OF SOME RECENT STATISTICS IN REGARD TO ETHER, AND A CONSIDERATION OF SOME PRESENT METHODS OF ITS ADMINISTRATION.[1]

BY JOHN B. BLAKE, M.D.,
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(Concluded from No. 23, p. 562.)

CONSIDERING briefly some of the present methods of giving ether, let us first discuss the general principles underlying etherization. That life may continue, a certain amount of oxygen is necessary, and it is also necessary that carbonic droxide, $CO_2$, should not be present except in small quantities. If there be either too little oxygen, or too much $CO_2$, or both of these conditions simultaneously, the patient will become asphyxiated, and if subjected to such influences long enough, will die. Therefore, it must not be forgotten that any method of etherization is bad which favors the development of the above-mentioned conditions, and is good in just so far as it avoids them, other things being equal. This seems so self-evident as to make its repetition almost absurd; but an examination of some of the well-known ether-inhalers would indicate that if it had not been forgotten, at least it had not been suitably provided for in mechanical construction of these instruments. To produce anesthesia, it is necessary to introduce into the system a certain amount of the vapor of ether (or chloroform); and to combine this with a sufficient quantity of oxygen, and the removal of $CO_2$, is the essential problem underlying all anesthesia.

The absolutely essential characteristic of any ether-inhaler is, therefore, to present to the patient sufficient ether and sufficient oxygen, and to permit the $CO_2$ to escape. To these characteristics, an ideal inhaler would add cleanliness, lightness, simplicity, adaptability, a minimum amount of ether wasted externally to the patient, and so far as may be, a removal of the unpleasant irritation of the ether vapor itself.

The various mechanical arrangements for giving ether may be roughly divided into three classes: (1) the cones, (2) the mask, and (3) the inhaler proper. In this classification the sponge is included among the cones, though it does not properly belong there, for in reality it forms a little class by itself, not only in its action, but in its use. It might be considered a cone without sides. All three of these classes have, of course, a common object in view, and that is the presentation of ether vapor to the patient in a safe and acceptable manner. And if we may judge, as we are told, of the degree of resistance of a disease to drugs, by the number of remedies suggested for it, so may we argue from the number of mechanical contrivances which are described for the administration of ether and offered for sale, how far we still remain from an ideal ether-inhaler. And though one naturally shrinks from offering another machine to increase the already too great number which exist, still it is pardonable to endeavor to grasp firmly the essential principals of etherization, and then to suggest some of the necessary characteristics of that wonderful instrument of the happy future, the ideal ether-inhaler. But before consulting the future, let us consider the past and present.

Considering first, the sponge, it is perfectly obvious that with a good ether sponge there is ample opportunity for a sufficient supply of oxygen, and for the dissipation of the undesirable $CO_2$. In this respect, the sponge is perhaps the best known method of giving ether; at all events, there is no other inhaler with which the writer is familiar, that excels it in this regard. The objections to the sponge are mainly the large amount of ether required, and the complete saturation of all the assistants; the liability of vomiting into the sponge, in which case it is extremely difficult to clean; and the fact that many patients dislike to use a sponge with which others have previously been etherized. It is unquestionably true that with a sponge more time is consumed in producing anesthesia, and for obvious reasons. That the sponge hardens and tends to freeze, as is said to be the case in the Ormsby inhaler (Buxton), has not been observed in Boston; and there are no other considerable objec-

[1] Being one of two papers receiving the second Lyman Prize for 1894

tions that the writer has found. All these are unquestionably valid, as they are unquestionably secondary in importance to the fact that with the sponge the patient is etherized and not asphyxiated; and the fact which seems to be unquestionable, that there has never been a death directly traceable to ether in the Massachusetts General Hospital, where the sponge is used to the practical exclusion of all other methods, must make us a little cautious in moving too lightly to other and more complicated inhalers.

The cone, which is essentially a sponge or a spongy substance, enclosed in more or less impermeable walls, comes next under consideration. The essential principle upon which it rests is, that when placed upon the patient's face, all the air which enters his lungs shall first pass through an ether-bearing medium, and, conversely, that no air which has not passed through such a medium, shall enter his lungs. For this reason, the cone should not be placed directly over the face at the first inspiration, but held at a little distance until the trachea and bronchi have become accustomed to the ether vapor. In the cone, it is absolutely essential that the ether-bearing medium shall be so arranged as to allow complete and easy respiration, and that all the air necessary shall pass easily through it. The towel cone more nearly approaches the sponge in character, since air passes through its sides as well as through the apex. The various modifications of the towel cone — the paper cone, rubber cone or metal cone — all aim to possess qualities more or less desirable. A good cone, for one who really wants a cone and not a sponge, should fit snugly and comfortably over the mouth and nose, should be easily cleaned, light and strong, so arranged that it may be rapidly made ready for etherization, and when so made ready, should be perfectly comfortable to the patient when breathing deeply; in other words, should offer no obstacle to a forced deep inspiration. Such a cone combines the desirable qualities of the sponge with other desirable qualities which the sponge does not possess. It is perfectly safe; it does not waste much ether; it is not in any way objectionable to the patient, and it may be fed with ether without removing it from the face.

The ether masks are seldom seen in this country. In Switzerland and Germany and France, however, they are extensively used. Perhaps the best known is that of Juillard of Geneva, and its modifications by Dumont and Ritsche. In the excellent article on ether narcosis by Garre, a detailed description, and pictures are given both of the Juillard mask and of the Dumont modification, while the Ritsche modification is described and pictured in his own article below referred to. A metal or wire basket, large enough to cover the entire face, is covered with oiled silk, and at its vertex contains a tuft of flannel upon which the ether is poured. The mask is then held down on the face, and, as a rule, in much less than half a minute, pressed down so as to exclude the external air as much as possible, surrounding the edge of the mask with a towel, and the struggling patient is restrained by assistants. The mask is removed as seldom as may be to pour on more ether. Slight modifications of the above exist in both directions. In Lyons, a longer time is taken in making the patient accustomed to the fumes, before tightly covering the face. In the second method, a large quantity of ether is poured on at first, and "after a few breaths," the mask is pressed down on the face. The author naïvely adds that "the patient believes that the concentrated ether vapor will suffocate him, and fights for a short time very energetically, but soon loses consciousness." He adds, that if the mask is not removed, a long narcosis may be obtained, the expired ether being again inspired, without producing any signs of a $CO_2$ asphyxia. Since this was the apparatus employed and the rules followed by Miculicz, it is possible that American surgeons may not wonder so much as they otherwise might, that he has abandoned ether for chloroform.

The modifications of Juillard's mask do not vary its workings. That of Dumont is merely to employ a second wire basket within the first, and between the two to place the ether-bearing medium. This at once ensures greater cleanliness and offers a larger surface for the evaporation of the ether. The Ritsche modification is to make the mask with metal sides into which glass windows are placed on the sides. The objections to this mask are very obvious; in all except Ritsche's form the entire face is invisible; corneal reflex and pupil, as aids, are removed, and the irritating effect of ether on the conjuctiva is substituted. And in spite of the assertion that $CO_2$ poisoning is not developed, a condition closely analogous to it, would often, if not invariably, be revealed, if the masks were removed often enough to allow of its being observed; at least, similar conditions would produce such results in America.

We come now to the inhalers proper (or improper), which are, as a rule, more complicated instruments. They are often furnished with a reservoir to contain ether, which moistens the ether-bearing medium over which a stream of air plays, or else the inspired air is brought through the ether reservoir itself.

The simplest of all inhalers is the Allis. In reality it is rather a cone than an inhaler. The original form, in which the many times reduplicated folds of a bandage on which the ether is poured, were fitted into a rubber cylinder, was perhaps the most satisfactory of the varieties of this inhaler. In its latest modified shape, "aseptic" so-called, the rubber cuff is omitted, and the shell is of metal, which is supposed to fit snugly over any face, and which springs open along one side to permit the removal of the bandage. The outer shell is clasped by two projecting hooks with sharp corners (enough alone to condemn it) and the inhaler itself is practically a rather inferior variety of cone. Its chief merit is the rather ingenious arrangement of the bandage, which holds the ether well, and permits a free passage of air. The Allis inhaler consumes much ether.

Next to the Allis, come a series of inhalers furnished with bags which receive the expired air and ether and hold it until the patient inspires it again, protecting the general atmosphere, and the occupants of the room at the expense of the patient.

The simplest of these is the Wauscher inhaler, modified by Landau (Vogel). A rubber mouthpiece, shaped somewhat like the mouthpiece of a nitrous-oxide gas apparatus, has attached to it a short neck, a large bag of thin rubber. The mouthpiece, neck and bag are all detachable. Into the bag the ether is poured, and the mouthpiece applied to the face; the bag is shaken to hasten evaporation of the ether. Unless the apparatus be lifted from the face, a fresh supply of air is not offered to the patient. It is interesting to note that Vogel, after describing this apparatus,

enters into a long exposition of the $CO_2$ poisoning which must necessarily result from the use of the Juillard mask. If he describes his own inhaler accurately, it would seem to be rather a Hobson's choice between them.

Ormsby's inhaler is similar in general shape to Wauscher's but has a sponge in the neck of the bag; a tube leads from the outside to this sponge, and ether poured into the tube is distributed over it.

Canfield's inhaler has a much larger neck. Part of this metal neck is an ether reservoir, and the remainder an open tube connecting the mouthpiece and the bag, and loosely filled with a sponge. By pressing a button, ether is allowed to trickle down upon the sponge.

Clover's is at once the most complicated and the best known inhaler used in English-speaking countries, and does not need description. Its mechanism is in many ways admirable, and unlike many inhalers, it may be used in almost any position which it is necessary for the patient to assume. The inspired air is carried through the ether on its way to the mouth, and a valve leading directly through the mouthpiece permits undiluted air to enter in moderate quantities, if so desired. A large part of the air, however, is expired into the bag and immediately inspired again. Buxton, in commenting on it, says that cyanosis and asphyxia may be avoided by lifting the inhaler from the face every seven or eight inspirations. The bag is the chief objection to all of these, and in the judgment of most American surgeons, an objection sufficient to condemn them in spite of other and better qualities and their mechanical advantages. It is not good for an unetherized person to breathe and rebreathe the same air, and why it should be good for one etherized, to whom the shock of the anesthesia is added, to do so, is not at all obvious.

Battershall has produced a remarkable-looking inhaler, which seems both clumsy and needlessly spread out, but yet contains principles which, theoretically at least, should place it ahead of any yet considered in this paper. A rubber mouthpiece is fitted to a (long) tunnel, into which, in turn, a cylinder fits. The cylinder is partially filled with cotton to be saturated with ether, a valve which opens towards the cotton is placed at the distal end of the cylinder, and a valve which opens towards the external air, is placed upon the upper edge of the mouthpiece. A screw permits a small quantity of pure air to enter the tunnel above the mouthpiece at will. When the patient inspires, the valve in the mouthpiece closes, that in the cylinder opens, and the air rushing in enters the lungs after passing through the ether-laden cotton (the screw in the tunnel being closed). On expiration, the air rushes out through the valve in the mouthpiece, that at the end of the tunnel being closed. If pure air seems indicated, the screw in the tunnel is partially closed. Of the practical working of this inhaler, the writer is ignorant; theoretically, it is much better than any of those previously considered. Its present construction could be definitely improved.

Packard has invented an inhaler consisting of a bottle for ether, a mouthpiece connected with this bottle by a rubber tube, and a Davidson bulb acting into the bottle, and when contracted, forcing the ether vapor into the mouthpiece, whence it is sent by expiration into the bottle again.

Khrone and Seseman, in London, have a similar principle, better developed and more mechanically perfect, in which the really excellent mouthpiece is furnished with a valve, after the manner of Battershall, and also a valve at the entrance of tube to mouthpiece, shutting off expired air from a return to the ether bottle. On inspiration, ether vapor is forced in from the bottle and is expired into the open air. A very small amount of ether is used, and it is entirely unirritating to the patient. The only objection to the arrangement is its size, and the rubber tubes at which an excitable patient might clutch and easily destroy the apparatus.

Dr. Williams, of this city, has constructed an inhaler which is probably, on theoretical grounds, the most perfect that has been made. In it the valves acted as in the two above described, but the ether vapor was not forced from the reservoir but simply inhaled with the air by the inspiration of the patient. A screw also admits pure air directly from without. The only objection to this instrument, is the minor one of size, and certain mechanical and constructive details. The principle of inhaling into the lungs air which has passed through a body of ether, and then exhaling it into the surrounding atmosphere, appears to be unquestionably the most perfect foundation for ether anesthesia. The production of an apparatus embodying this principle, which shall be of a convenient size, light, strong, durable, simple, and so arranged that it may be used in any position, upright or inverted, is the main problem that now confronts any one who would produce an ideal ether-inhaler. The difficulties are greater than is at first apparent, and many forms sufficiently obvious and easy of construction, combine in themselves several of the above enumerated qualities. But the mechanism which possesses them all has not yet been devised; and while waiting for its appearance, it is evident that a cone which has proved by experience to be trustworthy, and ether, which, as Vallas says, is as effective as chloroform and less fatal, are respectively the best agent and method for producing anesthesia at the present time.

It is impossible to leave this subject without a word of regret for the lack of careful and trustworthy statistics in this country upon ether anesthesia, and equally impossible to omit an earnest appeal for the development of such statistics in the future. Particularly in Boston, the birthplace of ether (and of anesthesia), is it appropriate that reliable and complete notes upon all points of etherization should be taken as a matter of course, and collected to make a basis for scientific conclusions. It should be the duty of the etherizer to make such notes, and it would at once demand a more thorough training upon the part of that assistant, a more complete concentration of his attention upon the etherization alone, and an elevation of the standard of his position. The sentiment that "any one will do to give ether" is gradually dying, and the quicker it is buried the better. Granting that the etherizer is thoroughly familiar with and understands completely his duty (and this should be a *sine qua non* just as much as with the operator himself), the complete care of the anesthesia should be placed in his hands. To it he should give his entire attention, and to the patient as little ether as is consistent with complete unconsciousness. The etherizer should be the one appealed to in regard to the patient's condition, and on his judgment should depend the question of the necessity of stimulation, its character and its amount,

subject only to the final authority of the operator, which need be only occasionally invoked. The etherizer has had both the respiration and the pulse-rate constantly before his eyes and under his fingers, and should be best able to judge of variations in either of them. It should be his privilege to ask for the discontinuation of the operation or to call for artificial respiration, if the case seemed to him to demand it. In this way, the position of etherizer would be made one of much importance, and the necessity for more judgment and skill in the administration of ether would be demanded and undoubtedly developed. The record of a surgical case should not be complete without the notes upon the anesthesia, made by the etherizer himself, and they should comprise —

The time required to produce complete anesthesia.

The duration of anesthesia.

The quantity of ether used, if a special form of cone be used.

The presence or absence of vomiting both during and after the operation, and if present, its amount and character.

The character of the recovery from ether, and the occurrence of collapse, cyanosis, unusual conditions of the heart, or respiration, and any other circumstances that seems worthy of comment.

Such notes, combined with the results of the examination of the urine, before and after, in at least a certain proportion of cases, would undoubtedly teach us much that would be valuable upon the subject of anesthesia. It would be a practice in line with the increased care of details in other branches of the science, and it would certainly enable future surgeons to avoid the mistakes, few though they be, that have been made; and it would probably contribute not a little to the comfort of the patient. And is it not appropriate that the city which was the mother of ether anesthesia should follow most carefully the development and growth of its offspring, and in intimate and accurate knowledge be not only its foremost champion, but its final authority?

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## BICYCLING FOR WOMEN.[1]

BY CHARLES W. TOWNSEND, M.D.

As an aid to the discussion on this subject of bicycling for women I have sent to a number of female physicians in Boston and throughout the State a list of questions. The answers of eighteen of these I have been able to classify, and I wish to express here my indebtedness to these physicians[2] for much valuable information.

The questions asked were:

(1) Do you consider bicycling good for the average woman?

(2) Have you seen any harm from it? If so, what?

(3) Would you advise it in any form of uterine disease?

(4) What is your personal experience, if any, with bicycling?

The answers I have classified as follows:

(1) All but one stated decidedly that they considered bicycling of value to the average woman, ten of them adding one or more of the following qualifications:

(*a*) If used in moderation, both as to length of ride and speed.

(*b*) If properly dressed, one adding without corsets.

(*c*) If in proper posture.

(*d*) If at proper times.

(*e*) If protected from falls while learning.

(2) Nine had seen no harm from bicycling. Four more had seen harm only from excessive use in the form of general fatigue and jarring of the head and spine. One reports severe pain in the head in a stout woman of forty following excessive strain in climbing a steep hill. Another has seen serious ovarian trouble directly due to riding long distances or during or near the menstrual period.

Another reports a case of renal hemorrhage; a case of profuse metrorrhagia; a case of oöphoritis with antiflexion and intense dysmenorrhea in a patient hitherto entirely healthy; and a case of miscarriage.

Another physician has seen uterine congestion and dysmenorrhea in a patient with no previous history of pelvic trouble.

[1] Read before the Obstetrical Society of Boston, April 13, 1895.

[2] Answers were received from Drs. R. Barnard, F. Berlin, E. L. Call, E. M. Davis, S. E. Palmer, M. Perry, A. G. Richardson, L. M. Robinson, M. A. Smith, S. R. Stowell, J. Tolman, L. F. Vickery, G. Wolcott, E. W. Mooers, S. M. Crawford, S. E. Crocker, H. L. Harrington, L. V. G. Mackie, M. O'Callaghan, and C. J. Alexander.

Another has seen harm in a case of extensive adhesions and contracted ligaments; where there were active inflammatory processes present; and in one case where there was a small subperitoneal fibroid in the uterine wall.

One physician reports contusions from an improperly fitted saddle, a difficulty which can be avoided, she adds, by proper adjustment of the saddle.

(3) The question, "Would you advise it in any form of uterine disease?" was answered in the negative by two only. The remainder had recommended the exercise or might recommend it in suitable cases. The majority of these limited the exercises to chronic cases, especially where the circulation was sluggish and the muscular system relaxed, cases of uterine neurasthenia, dysmenorrhea, amenorrhea due to chlorosis, moderate displacements and imperfect development.

A number of cases are reported as benefited by bicycle exercise. They are briefly: Several cases of retroversion, one case improved so that pessary was discarded, others not harmed; a cured case of retroversion learned to ride, the falling off, etc., doing no harm, general health improved. One had "seen improvement in patients with enlarged and even prolapsed uteri after taking systematic exercise on the wheel."

The following cases are worth reporting at some length:

Young married woman, retroflexion of uterus and prolapsed ovary with adhesions; dysmenorrhea and pain on walking. Learned to ride a bicycle and used it all summer with the exception of the menstrual periods. Rode thirty and forty miles in a day at times. At the end of this time examination showed that "the inflammation has entirely subsided, her menstruation causes her very little pain, and she considers herself a perfectly well woman. The displacement is still there but not so sharply defined."

Another case is as follows:

A young woman of delicate physique with great dysmenorrhea requiring rest in bed. Use of bicycle begun last April followed by improvement in general health with menstruation fairly comfortable, not requiring rest in bed.

Several speak of the beneficial use of the bicycle where walking was difficult or impossible. One says: "Several patients with uterine and ovarian disease, who were unable to take walking exercise have received marked benefit from bicycling," and adds, "due I have thought to the general tonic effect of an out-of-door life, change of thought, etc., all the organs of the body partaking in the good results." This strikes the key-note of the situation.

(4) It is interesting to note that these favorable criticisms were not obtained from bicycle enthusiasts, as only one of these had used a bicycle herself. Three had begun to ride only, while the remainder had no experience in bicycling.

The one rider says, "My own personal experience leads me to consider bicycling a decidedly healthful, safe, agreeable and cheap form of exercise."

These replies, it seems to me, cover the field of bicycling for women very satisfactorily, showing that the bicycle is of great value to the average woman, even to the woman with various forms of uterine disease. They also show that the bicycle when improperly used is liable to do harm.

It remains to sum up briefly the subject.

Out-of-door exercise, it is unnecessary to state, is of great value to every one, and, it is also unnecessary to add, that women as a class suffer greatly from the lack of it. Another thing from which women suffer is too heavy and too tight clothing. Both of these ills the average woman is entirely unconscious of, and will deny the need of more exercise on the one hand, or the existence of heavy and tight clothing on the other. No amount of dress-reform preaching or of calisthenic exercises will remedy these evils, or awaken the woman to a knowledge of the possibilities of the enjoyment of life. This is what the bicycle is doing, and is destined to do in the future.

The bicycle provides not only an agreeable method of exercise in the open air, but also demands a comfortable loose and light costume. Whether it will change woman's dress so far as to discard the skirt and substitute the divided garment or loose knickerbockers remains to be seen.

Patients who have substituted the comfortable loose "health" waists for corsets, while they were riding, have found that corsets were unnecessary for their every-day dress, and decidedly uncomfortable.

In talking with several ladies' tailors on this subject I have found that short corsets which do not press on the abdomen are used, and that, while some cling to the regulation corset, many are using waists simply. One tailor writes me, "I make bicycle costumes for a great many that do not wear corsets, but the Equipoise waist, and make them just the same style and cut as if they wore corsets."

Like all forms of exercise the bicycle can do harm by excessive use. Too great speed or too long rides are exhausting and may injure some delicate point. The exercise is so agreeable and inspirating that there is more danger of excess than in many out-of-door sports, especially if a spirit of ambition and rivalry is allowed. The long rides on time — even "century" runs are indulged in by women — accomplish no useful purpose, and often result in great harm.

Another danger to be avoided is the strain from riding up steep hills, a case where ambition often compels the rider to persist after the effort becomes too great. A good rule is to dismount and walk up every hill where the effort of riding is at all irksome. The change of exercise is restful and beneficial.

Another evil, one which fortunately is rarely found among women riders, but is all too common among men, is the stooping posture with bent back and head thrust out awkwardly like a tortoise. This is the position of the racer on the race-course. For ordinary riding it is entirely unnecessary, and very harmful, contracting the chest and bowing the back, besides preventing the rider from enjoying the scenery. The class of riders who sit in this way, however, do not care for scenery. By raising or lowering the handle bars or seat, both of which are adjustable, any road bicycle may be so arranged that the rider is compelled to sit erect. This matter is often not understood by parents who think that the bicycle is so constructed as to require a bent posture. There is no more need to condemn bicycling on this account, than there is to condemn horse-back riding on account of the position of the jockey in racing.

The saddle, in addition, allows considerable adjustment of tilting and should be so arranged as to avoid pressure in the pudendal region. This danger has by

some been much overestimated and can be avoided. The stooping posture as well as a faulty position of the saddle tends to bring pressure in this region.

The bicycle has been compared with the sewing-machine. As well compare mountain climbing with exercise in a treadmill! The differences are great, and I have arranged them in parallel columns.

| Bicycle. | Sewing-Machine. |
|---|---|
| Out-of-doors. | In-doors. |
| Mental recreation. | Monotonous task. |
| Body erect. | Body bent over. |
| Increased circulation. | Stasis of blood in lower limbs and pelvic organs due to bent position. |
| Vision not concentrated. | Eyes fixed on fine points. |
| Exercise consisting of sweeping movements of legs and thighs, together with the use of all body muscles in swaying motion of balancing, together with more or less use of arms. | Exercise limited to restricted movements of lower legs. |
| Exercise demands deep inspirations. | Exercise so slight that deep inspirations not required. |

Those who do not ride imagine that bicycling exercises the legs only. They are very much mistaken.

Dr. G. M. Hammond[2] has found that the average expansion of the chest in bicyclists who sit erect is one and four-sevenths inches, the average in the non-exercising man being one inch.

The delightful nature of the exercise is of the greatest value. To most women gymnasium work is a bore, and so often is walking with no object in view except the exercise. Both of these forms of exercise when prescribed by the physician often accomplish but little, as the patient is not taken away from herself.

Not so with the bicycle, which breaks up morbid trains of thought, takes the patient away from herself, and in that way benefits every nervous or functional complaint. It is, moreover, an exercise which develops self-reliance, a virtue much needed by this class of patients.

It is unnecessary to speak of the advantage to town dwellers of getting easily into the country and of the small expense and great possibilities of bicycling.

In conclusion, it seems to me that bicycling is beneficial to women, not from any special effect on the pelvic organs, but because it is an agreeable, healthful form of exercise in the open air, a form which exercises the whole body, and indirectly benefits special conditions. And the converse of this holds true, that as a general exercise bicycling is not hurtful to the pelvic organs even when these are affected, unless the disease is so acute that any exercise as great as this is contraindicated.

## BICYCLE SADDLES FOR WOMEN.[1]

BY JAMES R. CHADWICK, M.D.

It has seemed to me important to inaugurate a discussion before this Society upon the subject of the bicycle saddle for women, in view of the great and increasing resort to this mode of exercise. I feel my incompetence to decide upon the various considerations presented by the topic, because I have never been a bicycle rider. My concern has been, however, awakened by the admissions of two patients. (1) A married woman, thirty-four years old, complained that after the menstrual period (during which she abstained from riding) she invariably was conscious of an irritation in the vulva which persisted for several days. I could not discover that any permanent lesion was produced. She attributed the discomfort to the fact that the vulva rested upon the pointed projection of the saddle in front. She subsequently obtained an English saddle — the Brooks Oval Saddle by name — which differed from the other chiefly in being broader behind and less high in front. Upon this saddle she has since ridden without discomfort. (2) A few months later a married woman, forty-seven years old, who had been referred to me by Dr. Weir Mitchell, of Philadelphia, for neurasthenia, amenorrhea, etc., reported to me that she had taken to bicycle-riding with the greatest benefit to her general health, but that she had been much troubled with leucorrhea. This last symptom I found attributable to a chronic vaginitis and apparently produced by the exercise. In view of the great improvement in her general physique I did not deem it necessary to forbid bicycling, but prescribed an astringent for the vaginitis; with what effect I have not since learned. These experiences have led me to give much attention to the saddle of the bicycle and its fitness for women.

I find that no serious attempt has as yet been made to produce a saddle that shall be adapted to a woman's anatomy. The bicycle saddle for men seems to have been modelled upon the saddle that was found suitable for men riding upon a horse, being merely reduced in most of its dimensions. This has answered most of the requirements, though often found to strike against the prostate gland or the pubic arch. When women began to ride they were given the same saddle, regardless of the fact that behind the pubic bone are the external genital organs so prominent as inevitably to rest upon the anterior projection of the saddle. The result has been that women have generally had great difficulty in having the saddle so adjusted as to be rendered comfortable — in other words to avoid pressing unduly upon the vulva.

My inquiries have not enabled me to form definite conclusions, but have made evident the fact that (1) the saddles in most use require many adjustments to be comfortable to the generality of female riders; (2) that some of the saddles are absolutely unfitted for the use of women; (3) that the teachers have no definite ideas by which they can adapt the saddle to the use of women.

Now let us consider briefly in what respect the saddle needs alteration to fit it to the anatomy of woman. In the first place a woman's pelvis is broader than a man's, and the tuberosities of the ischia are further apart in woman than in man, consequently the width of the rear portion of the seat needs to be greater. No such provision has been made. This is a matter, however, easily corrected when attention is called to it. Secondly, the anterior projection of the saddle must be tilted downwards so that it will not strike against the vulva. This, however, requires the most delicate adjustment, for if the saddle is tilted too far the slope of the seat causes the rider to slide forward so as to rest almost entirely upon the anterior projection, and so defeat the object of the tilting. Again, the seat may be shifted backwards and forwards upon the frame, without tilting. When shifted backwards, the action of the leg upon the treadle tends to push the

[1] Read before the Obstetrical Society of Boston, April 13, 1895.

[2] New York Medical Record, February 2, 1895.

body backwards and thus to ensure that the ischia shall rest upon the saddle; but in this location the muscular action of the legs is less effective, which renders the work of propulsion greater.

From the foregoing it is evident that the adjustment of the present form of saddle to women is attended with great difficulty. The question therefore arises, Is the anterior projection of the saddle essential? I cannot pretend to answer this question; but it seems to me that experiments should be made to dispense with this feature of the present saddle if possible. The problem is whether without the anterior projection, the seat of the rider would be sufficiently secure. The trouble is that when the leg is straightened and the treadle at the lower point of its circuit the thickness of the thigh tends, by pressing against the anterior margin of an oval saddle, either to lift the tuberosities of the ischia from the saddle or to drag them forward, so that after a jounce they will not descend upon their proper place, and a secure seat will thereby be lost, or the skin be chafed at the junction of the thigh and the ischiatic region. The feasibility of such a saddle as this can only be determined by experiment, and should be made before women are generally allowed to ride the bicycle.

In conclusion, I would express the opinion that bicycling is a most desirable form of recreation and exercise for women, and that my only purpose in bringing it up for discussion on this occasion is to stimulate the inventive minds of its advocates to devise a saddle which shall not inflict local injury or discomfort upon women riders.

## Clinical Department.

### MULTIPLE FIBROID OF THE UTERUS WEIGHING FOUR AND A QUARTER POUNDS.[1]

BY W. L. BURRAGE, M.D.

R. H. (colored), thirty-nine years old and single, first came under observation August 17, 1894. She was a native of Virginia, and had always enjoyed good health up to two years previous to this time. During these two years she had suffered with dysmenorrhea, which had been increasing in severity, and with profuse menorrhagia and constant pains in the groins, especially on the left side.

The pain in the groin was of a bearing-down character, and prevented her from lying on the left side. She complained also of frequent micturition and of poor appetite and sleep. The catamenia were regular, of two days' duration, flow of twenty napkins. The severe dysmenorrhea was every other month, when she was obliged to give up work and suffered with a large variety of nervous symptoms.

Diagnosis: Fibroid, size of large orange; nodule behind, another to left and above; cervix behind pubic arch and to the left, in front of posterior nodule, which nearly fills the pelvis; sound goes upward three inches.

Treatment with intra-uterine galvanism was begun at once. Eighteen treatments, N. 50 to 100 milliampères of five minutes' duration each were given during three months. At the end of this time the tumor had grown perceptibly, and was distorted to such an extent that intra-uterine treatment was no longer possible. A galvano-caustic puncture, 100 milliampères, N., was then made in the posterior nodule.

At the end of seven months she was a good deal relieved as regards her symptoms, but she looked forth with terror to every other menstrual period, and was anxious to get rid of the tumor, which had increased one-third again in size and reached nearly to the umbilicus.

I operated at St. Elizabeth's Hospital April 3, 1895. There were no adhesions, and the only trace that I could find of the electrical puncture was a black spot the size of a pin's head on the posterior nodule. After the broad ligaments had been tied off, the tumor was delivered with comparative ease after the posterior nodule had been dislodged from the pelvis. The vagina was not opened, a small piece of the cervix being left behind. The canal of the cervix was touched with pure carbolic acid, the uterine arteries tied with silk, and the stump and the peritoneal edges whipped over with continuous catgut. No drainage.

The operation was ten days ago, and the patient so far has had an uninterrupted recovery. The temperature has not been above 100°; the union in the abdominal wound has been good, and aside from some nervousness at night and sluggishness of the bowels, there has been nothing abnormal to note.

Inspection of the tumor shows the futility of trying to reach all parts of such a uterine cavity as is here shown with electrode or curette; for, as you see, it is some four and a half inches deep, measured from the severed edge of the cervix, and the distorted left horn reaches through to the back of the tumor, bending in several directions as it goes.

This case exemplifies the rule that electrical treatment does not diminish the size of the tumor in a majority of cases of fibroids and it causes no adhesions.

[1] Shown at the Obstetrical Society of Boston, April 13, 1895.

## Medical Progress.

### RECENT PROGRESS IN ANATOMY.

BY THOMAS DWIGHT, M.D.

#### THE RELATIONS BETWEEN THE SHAPE OF THE SKULL AND THE POSITION OF THE PETROUS PORTION OF THE TEMPORAL BONE.[1]

DR. GARNAULT has undertaken to verify Körner's views on this question which is of much practical importance in otological operations. Körner had declared that the floor of the middle cerebral fossa is higher in long skulls than in short skulls, and also that the continuation forward of the lateral sinus before its descent, is in direct relation to the degree of brachicephaly. Garnault's studies were made on sixty skulls, of which only seven were mesaticephalic. It is needless to go into details when the conclusions are as sweeping as they are in this case, for Garnault finds, to state it most favorably for Körner, that his conclusions are of no practical value.

#### GROOVE ON SPINE OF SPHENOID.[2]

Mr. R. Clement Lucas spoke at a meeting of the Anatomical Society of Great Britain and Ireland, of a small groove which is found very constantly on the inner surface of the spine of the sphenoid caused by

[1] Comptes Rendus de la Soc. de Biol., 1895, No. 6.
[2] Journal of Anatomy and Physiology, vol. xxix, January, 1895.

the chorda tympani nerve. It is important as locating definitely the course of this interesting structure after its escape from the skull. It is situated behind and usually rather internal to the foramen spinosum. The best guide to the groove on the entire skull is the tubercle at the front of the vaginal process of the temporal bone. In some cases the groove broadens anteriorly. Mr. Lucas suggests very plausibly that this may be due to movements transmitted to the nerve through the lingual, which, of course, moves with the tongue.

### COMMUNICATION BY A LARGE VESSEL BETWEEN AN ARTERY AND VEIN.[3]

As is well known, it has been maintained by several anatomists, that there are vessels connecting arteries and veins which are too large to be called capillaries. Suquet described such vessels in the human hand and foot and introduced the term "circulation dérivative." The doctrine has experienced several vicissitudes. Professor Debierre and Dr. Gérard of Lille, now come forward with a truly remarkable observation. They found, not an excessively minute vessel, about which one might quarrel as to whether it was a large capillary or a small vein, but a vessel three centimetres long and two and one-half millimetres in diameter, forming a loop between the femoral artery and vein at the fold of the groin in a child three days old. This description applies particularly to the left side, but a corresponding vessel was found on the right. Most people would be inclined to look on this as a very exceptional and extraordinary arrangement, but the authors think otherwise. They have seen similar dispositions in the bodies of four young children, but at different points. With one exception, when there was found an anostomosis between the aorta and the inferior cava, these communications were always at the folds of the great joints of the limbs. Observations are now being made on the adult, which are promised later.

### THE CUSPS OF THE PULMONARY AND AORTIC VALVES.[4]

Professor Windle read a paper before the Anatomical Society of Great Britain and Ireland, on the relative position of the semilunar valves of the pulmonary artery and aorta. They are usually described either according to Valsalva, who gives one anterior and two posterior cusps to the pulmonary valve, and two anterior and one posterior to the aortic; or, in a directly opposite manner, according to which the pulmonary has two in front and one behind, the aorta one in front and two behind. This latter description is spoken of in the paper as that of "Gibson," which is undoubtedly a misprint for Sibson. Windle examined nearly 100 hearts himself, and brought the series up to that number by the use of notes on frozen sections furnished him by others. He finds that in 15 cases the arrangement is that of Valsalva, and in 85 that of Sibson. He adds the following judicious remarks: "In saying this, however, it is important to note that the description is only a rough one. It is only in comparatively few cases that the two anterior cusps of the pulmonary artery are equally anterior . . .; and that the same is true of the two posterior cusps of the aorta, indeed, more true; for the arrangement in the pulmonary orifice tends to be more strictly in conformity with the description than that in the aortic."

### VARIATIONS OF THE THYROID IN MAN.[5]

Dr. C. F. Marshall has examined the shape of this organ in the bodies of 60 children under ten years. His chief purpose was to obtain statistics of the persistence of the thyro-glossal duct and of the "canal of His," meaning by the latter the median cervical fissure which is occasionally met with. This latter was not found at all, nor was there ever any persistent ductus lingualis, though in 15 per cent. there was a little duct one-quarter inch long from the foramen cecum, representing its rudiment. The variations in shape were so great that Dr. Marshall declared it absurd to speak of a normal thyroid.

The lateral lobes were usually about equal. Once the right lobe was wanting, so that the gland consisted of a left lobe and an isthmus.

The isthmus was wanting six times, and was more or less fused with one lobe in about one-quarter of the cases.

The pyramidal process was found in almost half the bodies, and usually was attached to the hyoid bone.

The author notes "that there is no relation between the extent of the remnant of the ductus lingualis and the presence of the processus pyramidalis, for in the nine cases in which the ductus lingualis was represented by one-quarter inch, only four of these cases had pyramidal lobes, the other five having none at all." There are seventeen drawings of thyroids appended to this very interesting paper. It may be remarked by way of criticism that the morphology of the thyroid of the infant and of the adult is probably not the same. It would be well to have another series taken wholly from adults.

Dr. Mauclaire[6] has examined some 80 bodies and 30 dried preparations to determine the position of the isthmus of the thyroid on the trachea, which is somewhat variously stated in the books. Roughly speaking, he finds that in two-thirds of the cases the isthmus covers a part of the first ring, and more or less of the second. Next in frequency is what is commonly called the classical position, in which it rests on the second ring and leaves the first uncovered.

### THE SIZE AND POSITION OF THE STOMACH.[7]

Dr. F. Martius has made an extremely interesting preliminary communication of experiments made by Herr Meltzing in his clinic on the living stomach. The method was to introduce a sound bearing an Edison lamp into the stomach of persons on whom the boundaries of lungs and liver had been previously determined by percussion. Experiments were made with the patient lying and standing; with the stomach both full and empty.

Perhaps the most interesting result is that the empty stomach descends a great deal lower than is commonly supposed. This might, perhaps, have been expected for we are too apt to forget that our ideas of topography are gained from subjects in a position of extreme expiration. The empty organ almost invariably descended as low as the navel, and when filled with water materially lower. We come, however, here on a statement that is quite unintelligible, namely, that the lowest point reached was on a level with a plane

[3] Comptes Rendus de la Soc. de Biol., 1895, No. 1.
[4] Journal of Anatomy and Physiology, vol. xxix, January, 1895.
[5] Ibid., vol. xxix, January, 1895.
[6] Bull. Soc. Anat., Paris, tome ix, No. 3, 1895.
[7] Wiener med. Woch., No. 7, 1895.

connecting the highest points of the crests of the ilia. Now this is at practically the same level as the navel.

When the patient, who has been examined lying with the stomach full of water, rises, the lower border of the stomach and the edge of the liver fall from four to eleven centimetres.

The respiratory excursions of the lighted space are considerably in the recumbent and but slight in the upright position. The enlargement of the illuminated area on filling the stomach takes place chiefly to the right.

The observer has seen cases of really immense stomachs which to all intents and purposes are perfectly normal. Hence he declines to call an organ pathological, if we rightly understand him, whatever may be its size if it performs its functions. We are glad to learn that the author is about to publish his observations in book-form.

### THE CECUM.[3]

One would think that this organ had received so much attention that little new remains to be said of it, but there is no cessation of new contributions. Dr. Richard J. A. Berry gives a detailed examination of 100 cases, from which the following points may be gleaned.

There has always been some uncertainty as to how the upper boundary of the cecum is to be determined on the unopened organ. Of course the cecum is that part of the intestine below the opening of the ileocecal valve, but this point is not always to be known from external inspection. When the frenal furrows are to be seen the position of the valve is clear; when they are not Dr. Berry would have us take a point midway between the upper and lower borders of the cecum, just where it enters the ileum. As he justly premises that the solution can only be approximate, there can be no hesitation in following his plan.

The dimensions were taken on 42 ceca of which casts had been made, with the results shown in the following table:

| Age. | No. Cases. | Av. length. | Av. breadth. |
|---|---|---|---|
| Below 10 years . . . | 11 | 2.8 cm. | 3.7 cm. |
| 10 to 30 years . . . | 3 | 7 cm. | 8.5 cm. |
| 30 to 40 years . . . | 11 | 6.4 cm. | 7.4 cm. |
| 40 to 60 years . . . | 11 | 6.8 cm. | 8.8 cm. |
| 60 to 80 years . . . | 6 | 6.8 cm. | 7.7 cm. |

The author emphasizes two points as shown by this table, first, that the cecum is much larger in the adult than in the child, and, second, that the breadth is always greater than the length. Sex apparently has no influence on the size.

Treves describes four types of cecum, which it may be worth while to recapitulate for our readers who cannot easily turn to the original. The first is a conical prolongation of the gut something like a cornucopia. The second is short and bulging. These two forms resemble each other in one important respect, namely, that the three muscular bands are about equidistant and on the whole the cecum is fairly symmetrical, with the appendix springing from its extremity. In the third form the pouch to the right of the anterior band has grown to such an extent that it forms a great part of the cecum which is entirely lobsided, the appendix arising from its left side near the end of the ileum. The fourth form is an exaggeration of the preceding, the anterior band runs by the lower border of the ileum to the origin of the appendix.

Treves found the relative frequency of the types as follows: I, 2 per cent.; II, 3 per cent.; III, 90 per cent.; IV, 5 per cent. Berry finds in his 100 cases the following percentages: I, 10 per cent.; II, 6 per cent.; III, 80 per cent.; IV, 4 per cent. It is to be noted, however, that Berry included children and fetuses. Now six of his ten cases of type I were fetuses and this is the fetal type. Of the four others, three were from young children, thus leaving one adult case of the first type. The second type, which is an evident modification of the first was represented by six cases, but only two of these were from adults.

When all not adults are stricken out of Berry's series, we find his table reads as follows: I, 1 per cent.; II, 2 per cent.; III, 94 per cent.; IV, 3 per cent., which is strikingly like that of Treves. The practical surgical deduction is that in over 90 cases in 100 among adults the origin of the appendix will be found not far from the ileum.

Dr. Berry found the cecum completely invested by peritoneum in 94 per cent. of his cases.

[3] Anatomisches Anzeiger, Bd. x, Nr. 13, 1895.

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, April 13, 1895, the President, DR. JAMES R. CHADWICK, in the chair.

DR. W. L. BURRAGE reported a case of

#### MULTIPLE FIBROID OF THE UTERUS,[1]

and showed the specimen, weighing four and one-quarter pounds.

DR. JAMES R. CHADWICK read a paper on

#### BICYCLE SADDLES FOR WOMEN.[2]

DR. CHARLES W. TOWNSEND read a paper on

#### BICYCLING FOR WOMEN.[3]

The subject of bicycling for women was then discussed by the Society, especial attention being paid to the saddles, of which Dr. Chadwick had brought a number for criticism. The general opinion seemed to be favorable to bicycling as an exercise for women, although the present form of saddle was thought by some to be objectionable.

DR. E. J. FORSTER reported

#### A CASE OF VESICO-VAGINAL FISTULA

so large that it was possible under ether to look in and see the urine coming out of the ureters.

DR. EDW. REYNOLDS remarked that a curious fact of the case was that the ureters opened on the anterior surface of the bladder owing to the cicatricial adhesions.

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FURTHER LIGHT ON THE "KEELEY CURE."—Rev. Dr. J. M. Buckley, the editor of the *Christian Advocate*, has obtained the information from 68 clergymen and 25 physicians, that of 534 persons known to have taken the bichloride treatment 251 relapsed, 13 became insane, 11 died, 2 committed suicide and 275 were cured. The quality of bichloride furnished must be poorer at present than it was when the 95 per cent. of cures claimed by Keeley were effected.

[1] See page 596 of the Journal.
[2] See page 595 of the Journal.
[3] See page 593 of the Journal.

## ASSOCIATION OF AMERICAN PHYSICIANS.

TENTH ANNUAL MEETING, WASHINGTON, MAY 30 AND 31, 1895.

### THURSDAY. — MORNING SESSION.

THE Association met in the Army Medical Museum Library and was called to order by PRESIDENT WM. OSLER, of Baltimore, who delivered

### THE PRESIDENTIAL ADDRESS.

Dr. Osler reviewed the work of the Association for the past nine years, and concluded that the Association had thus far abundantly fulfilled its prime object, "the advancement of scientific and practical medicine."

This Association, he said, has already had a potent influence on the study of pathology and clinical medicine in this country. We need, however, a larger group of men who are devoting themselves exclusively to these branches. The rapid progress of the medical schools has increased the teaching positions in the scientific branches, and there is at present an actual scarcity of thoroughly trained pathologists and bacteriologists to fill them. There is no need to insist upon the necessity of accurate and prolonged training in the development of workers in these branches; but I do not think that the profession of this country as yet understands the art of training special clinical physicians. We have taken it too much for granted that such develop readily in the routine of family practice. True, along this path some of the most noted men in our ranks have travelled; but the time has come when able young men should be encouraged to devote themselves to internal medicine as a specialty. Content to labor and wait, during the first ten or fifteen years of professional life, with pathology as the solid basis of development, such men will pass to the wards through the laboratories, thoroughly equipped, to study the many problems of clinical medicine. They will gain the confidence of their professional brethren by accurate and thorough work, and through them, if they wish, the public and practice. The opportunity for such a career is in every city with a hospital of fifty beds. Of such — of physicians (in contradistinction to surgeons, gynecologists and general practitioners) and of pathologists and bacteriologists — should our Association in large part be composed.

We should all understand that this is a working Society; and when any of us cease to attend regularly, or when our interest grows lukewarm, we will promote best the common welfare by quietly retiring.

We have lost year by year very heavily by death, 16 of a total of 111 members. While some have passed away in the fulness of years, with their work accomplished, others have been taken in their prime, and several of our most valued members have been removed while still in the days of promise. This year we mourn the loss of two men who could ill be spared from their respective spheres of labor and from us.

Of Alfred Lee Loomis I need not say much to this audience, before which, as well as before a much larger, he played a strong rôle. Energy and determination, so clearly stamped on his features, led him early into the path of success, and each decade added reputation and prosperity. Threescore and four years found him one of the most prominent figures in the profession of this country — a successful writer, a much sought-for consultant, a busy man of affairs. Then the end — and happily for him, perhaps, while the harness was still on, and while the vigor of mind and body was still unimpaired. In this Society, in the Congress of our united bodies, Dr. Loomis proved a trusty counsellor, an earnest worker and a zealous supporter of the best interests of the profession. In his faithful attention to those duties which lie outside of the daily routine of our lives, duties which we are only too apt with advancing years and with assured success to neglect, he was a notable example to us all.

The death of William Cecil Dabney is in every way deplorable, untimely; and, since he died of such a preventable disease as typhoid fever, we might almost say, unnecessary. He had only reached that stage in his career when experience and judgment begin to ripen, and when we begin to discern in a man whether he is intellectually a polyp or a mammal, whether with his growth there has been development as well. Dr. Dabney was a conscientious and earnest worker, a zealous teacher and a man of wide sympathies with all that was best in the profession. He had a warm, lovable nature which endeared him to an unusually wide circle of friends and patients. To our Association, of which he was an original member, he was much attached; and we have lost in him a strong and faithful colleague, one whose ways and works were of the best and highest.

### LEUCOMAIN POISONING,

by DR. B. K. RACHFORD, Cincinnati.

Leucomain poisoning is a form of auto-intoxication etiologically related to migraine, migrainous epilepsy, and migrainous gastric neurosis. Paraxanthin, the most poisonous of leucomains, is found in very great excess in the urine passed immediately after these migrainous attacks, and is not found in increased quantities in the urine of these patients between these attacks.

Xanthin, another poisonous leucomain, is found in great excess in the urine passed just after one of these attacks, and in migrainous gastric neurosis xanthin is found not only in great excess in the urine, but it is also found in the stomach contents.

The paraxanthin separated from the urine of these cases will produce in the mouse symptoms very similar to an attack of migrainous epilepsy.

DR. F. P. KINNICUTT: I would like to ask if Dr. Rachford has had the opportunity of investigating urine in cases of tetany. I think it is exceedingly probable that a certain number of cases of tetany are the result of auto-intoxication, and that auto-intoxication is presumably due to some form of indigestion. It occurs not infrequently in cases of dilated stomach and in cases of severe gastro-intestinal disturbance, which would make it probable that it is caused by auto-intoxication. In the last few months I have seen two cases of tetany. One case was fatal in twenty-four hours after the occurrence of the first symptoms. The autopsy showed simply an enormously dilated stomach. The patient had had several previous attacks in the course of the preceding ten years, and all accompanied with marked symptoms of gastric intestinal disturbance. The other case was in a child, the tetany going over a period of three weeks. In this case there was continuous spasm. The symptoms finally entirely disappeared. Examination of the urine was not made.

DR. W. H. THOMSON: I feel extremely gratified

with the experimental demonstration that Dr. Rachford has given of the connection of migraine with auto-infection. I have long held that view; and I read a paper before this Society on the significance of intermittency in functional neuroses. The fact that some nervous diseases should be characterized by complete intermissions pointed strongly to toxic rather than to structural relations in their etiology. I do not see that the hereditary character of these functional neuroses militates in any way against such an inference, because clinical experience certainly shows in the case of gout, for instance, that we may have hereditary abnormal chemistry as well as hereditary abnormal morphology.

With reference to migraine, it has been my custom for years to treat those patients prophylactically, and I have felt that I have had a good deal of success by the free use of ammonium and sodium benzoate.

A close relation seems to exist between migraine and some cases of the uric-acid diathesis and some cases of epilepsy, and I have treated them on the same principle. This relationship was strikingly illustrated in one case that I had. The patient was one of the worst cases of migraine that I have ever had to do with. She had a son who from childhood had uric-acid renal calculus. A daughter inherited the migrainous tendency and that daughter had a son who was epileptic, an epilepsy which was very closely analogous in its symptoms to that which Dr. Rachford has described.

DR. F. C. SHATTUCK: How long does it take to find the xanthin and paraxanthin?

DR. B. K. RACHFORD: Three weeks.

DR. J. E. GRAHAM: I would like to ask Dr. Rachford if he examined the urine shortly before the attack, say a week before?

DR. B. K. RACHFORD: I have made an examination of the urine at almost all times between the attacks and as recently as one week before and have always failed to obtain these poisons. I have not yet had a case of tetany that I could satisfactorily examine. Apart from the interest which attaches to these cases this has, I think, a great bearing upon the pathology of uremia and eclampsia from uremic causes.

### SOME TOXICOGENIC GERMS FOUND IN POISONOUS FOOD,

by DRS. VICTOR C. VAUGHAN and GEORGE D. PERKINS, Ann Arbor, Mich., was read by title.

DR. A. C. ABBOTT, Philadelphia, read a paper on

### THE EFFECT OF THE GASEOUS PRODUCTS OF DECOMPOSITION UPON THE HEALTH OF ANIMALS THAT ARE COMPELLED TO RESPIRE THEM.

In a paper read by the writer at the Congress of American Physicians and Surgeons, session of 1894, were presented the results of a series of experimental studies that were made with a view of determining in how far the opinion held by many with regard to the part played by the air of sewers in causing or disseminating diseases, could be supported by evidence obtained through the employment of exact chemical, physical and bacteriological methods of investigation.

The outcome of these experiments afforded nothing to justify the view that the air of sewers, under ordinary circumstances, could be held accountable for either the causation or dissemination of infectious maladies.

Since the presentation of the conclusions embodied in that paper, a series of experiments have been made with the object of discovering the effect of the gaseous products of decomposition on the health and resistance to infection of animals that were compelled to respire them. For this purpose animals, rats and guinea-pigs, were confined under bell-glasses through which was passed continuously, for varying periods, the air from over substances (meat-infusion, sewerage and urine), in different stages of decay. Some of the animals were subjected to this treatment only, while others were inoculated from time to time during the experiment with cultures of the bacillus of typhoid fever. Of eighteen animals on which the experiments were performed, only two, which will be referred to in detail in the body of this paper, showed any effect; the remaining sixteen presenting nothing that could be attributed to the conditions under which they had lived for from one to five months prior to their being killed. The general condition of these animals during the experiments, as determined by their outward appearance, appetite and daily fluctuations in weight, was as good as that of other animals kept under the ordinary conditions of the laboratory.

As a result, the conclusion seems justifiable, that as ordinarily respired, the air of sewers, or that from other bodies undergoing decomposition and putrefaction, has either not the power of inducing pathological conditions at all, or, if it has, such conditions are not demonstratable by such laboratory methods of experimentation as we have practised on rabbits and guinea-pigs.

### RENAL AFFECTIONS FOLLOWING INFLUENZA,

by DR. G. BAUMGARTEN, St. Louis, Mo.

A report of eight cases, from which it appears that damage to the kidneys is a frequent, and sometimes a serious consequence of grippe. Besides transient albuminuria, there have been found acute degeneration of the kidney, acute inflammation, both forms of chronic diffuse nephritis, and cases of persistent albuminuria not plainly belonging to one of these groups. The injurious influence on public health exerted by an epidemic of grippe may last much longer than the epidemic itself, by reason of renal and other sequels.

DR. A. JACOBI: I know that I find renal trouble very frequently after influenza. It has appeared to me that the form of nephritis that we see after influenza is the same that we find after diphtheria and after typhoid fever and, therefore, I believe that it must be due to the same cause, to the toxines of the different germs giving rise to these diseases. The microscopical appearances of such a urine are about as follows: Specific gravity say from 1.014 to 1.022 or even 1.026, of small amount when the case is recent, a very small amount of blood, hyaline casts, hyaline casts studded with granular matter or with small epithelium and granular casts of the thin, fine variety. These characteristics I have found, not only after influenza, but also after typhoid and after diphtheria. They are contrary to what we find after scarlatina, which has its own peculiar form of nephritis. The large majority of these cases get well and get well speedily, that is within two or three weeks, but sometimes taking two or three months. I have also seen quite a number of cases that became chronic.

DR. TYSON: I have observed renal trouble in persons who were entirely well and free from evidence of

it until after an attack of grippe. I have taken no trouble to collect cases of this kind but it seems to me there would be a considerable number if I gathered them. Then there is a second class of such cases, consisting of those who had so-called functional albuminuria previous to an attack of the grippe. In a certain number of such cases, the patient returned to me after having had the grippe, with a very much more serious state of affairs, with increased albuminuria, an increased number of tube casts and an altogether aggravated condition. Of these two conditions, the occurrence of primary nephritis from grippe and an aggravation of a previous albuminuria, I can speak from experience.

It is evidently a toxic nephritis.

Dr. F. C. Shattuck: I am sorry that Dr. Charles Folsom, of Boston, is not here, because this is a subject in which he is interested. Last winter I saw a number of times with him, a young lady, previously neurasthenic but much better than she had been, who was stricken with the grippe, followed by bronchopneumonia; the next thing was an acute nephritis with almost suppression of urine and an enormous amount of albumin. She became uremic; and it seemed as if the nephritis itself would prove fatal, because the quantity of the urine remained very small. Later on, the urine increased in quantity and she was doing pretty well. Next she had a general neuritis; and then came her sudden death, apparently from gastric implication. In connection with this case, Dr. Folsom has alluded to similar cases, so far as the nephritis is concerned, which he has seen in the Boston City Hospital and in which autopsies had been obtained, the character of the kidney being generally the large, red, swollen kidney. Regarding the similarity of the process with the nephritis which we see in typhoid, it seems to me that, however it may be pathologically, there is a certain clinical distinction between them. Of course, the influenza is a disease which is vastly more common than typhoid; the number of cases affected is very much larger, consequently we might get the disease in a larger number of cases although not in a larger proportion of cases. I do not recall a case of typhoid fever in which I have seen such a very severe consecutive nephritis as I have seen following influenza.

Dr. M. H. Fussell: I have under observation at the present time at the University of Pennsylvania, at least two cases of acute nephritis, which we think are due to a previous influenza. One of the cases came to the dispensary complaining simply of malaise which had followed an attack of influenza. He had gone about to different doctors, no one seeming to think of examining his urine. We found on examination an unquestionable parenchymatous nephritis. This case, especially, points to the value of examining urine as a routine matter, as we do at that institution.

Dr. A. Jacobi: I wish to correct a mistake I may have made. I spoke of the nephritis of diphtheria and typhoid, not as a sequel of these diseases, but the ordinary affection which is found in the beginning and during the course of the typhoid and in the very first days of diphtheria. It is of the same nature as this one which is found during and after influenza, so far as I know.

Dr. A. H. Smith: It seems to me that the degree of intoxication resulting from grippe is perhaps greater than its ordinary clinical manifestations would lead us to suppose. I should regard these cases of nephritis as exemplifying that idea. I have seen recently as the result of the last epidemic, several cases in which there seem to be very marked cardiac degeneration. Taking the history now, of the several years of grippe which we can refer to, I think we may conclude that the phenomena that we observed during the prevalence of the fever are but a very small part of the damage which is likely to occur. In one of Dr. Baumgarten's cases he speaks of subnormal temperature. During the last epidemic I noticed that very frequently. It seems to me that a considerable proportion of the cases of grippe which I had last winter were followed by subnormal temperature, often persisting for a considerable time, which we may justly refer to an invasion of the nervous system by the grippe poison.

Dr. G. Baumgarten: Dr. Jacobi may be right in deciding that the usual nephritic condition in influenza is that of typhoid fever, yet I would like to point out that the condition in influenza is not always the same; that there are various forms; we have for instance, a hemorrhagic nephritis and a non-hemorrhagic nephritis, and we have nephritis which comes on during the acute stage of the disease, and nephritis which comes on much later. We have affections which result early in dropsical symptoms, and those which show no dropsy at all but develop very acute uremic symptoms. Finally we have chronic affections of the kidney which can with the greatest probability be traced to an attack of influenza and which has not passed through any acute stage of nephritis.

### Report on Immunity against Vaccination conferred upon the Monkey by the use of the Serum of the Vaccinated Calf and Monkey,

by Surgeon-General George M. Sternberg and Surgeon Walter Reed, U. S. A.

Dr. G. M. Sternberg: Three years ago at a meeting of this Association, I read a paper in which I gave the results of some experimental work which seemed to demonstrate the fact that blood serum from a recently vaccinated calf, a calf immune as the result of its vaccination, neutralized the potency of vaccine virus when it was exposed directly to such blood-serum. The method used was to expose the points charged with the virus directly to the blood-serum from the immune calf. Other points were exposed in the same way to the serum of a non-immune calf. The serum from the non-immune calf had no effect, while that from the immune calf neutralized the virus. I stated that there was an antitoxin in the serum of immunized calves which might perhaps be used for immunizing children or for the treatment of the disease. I continued these experiments on children in a different way. I wished to find whether the serum from an immune calf, or from a patient recently having had small-pox, would prevent the development of the vaccine vesicles after vaccination. I went to the orphan asylums in New York, and I had a considerable number of unvaccinated children put at my disposal. I vaccinated in some cases in one arm with bovine virus given to me by Dr. Griffiths of that city, while in the other arm I injected the blood-serum from the immune calf. In other cases I injected immediately in the vicinity of the vaccination of the same arm. I also obtained blood-serum from a recent small-pox

case. I went to the small-pox hospital, and there was a young woman just convalescing from a very severe case. She consented to let me have some blood. I drew from her arm some four or five ounces of blood in a sterilized test-tube, obtained the serum from it, and used that in the same way, injecting about five cubic centimetres, sometimes in one arm, sometimes in the other. I never have published the results of the experiments, because I hoped to continue them, and also because the results were negative.

Press of duties has prevented my continuing this line of work, so I suggested to Dr. Reed, the curator of the Army Medical Museum, that he continue these experiments; and he has done so, and I will now read his paper.

DR. WALTER REED briefly reviewed the work done by former investigators on this subject, then detailed his own experiments, concluding as follows:

Putting together the results obtained in these experiments and those given by Strauss, Sternberg and Copeman, it is believed that the following conclusions may be drawn:

(1) That the manifestations of vaccinia in Cercopithecus mona is as well marked as Rhœsus; but that in Cebus apella, an American monkey, vaccinia apparently runs a milder course.

(2) That by the injection of the serum of the blood of a vaccinated monkey it is possible to immunize Cebus apella against vaccinia, and that the immunity thus acquired may last for thirty days.

(3) That the serum of the blood of the vaccinated calf, when injected in large quantities may markedly retard the course of vaccination in the monkey.

(4) That this retardation of the vaccinia probably continues so long as there is present in the system of the vaccinated animal certain antitoxic substances contained in the serum; and that when these substances have been eliminated from the body, the process proceeds to a successful though somewhat modified course of development.

That the fact, first pointed out by Sternberg, that the serum of the blood of the vaccinated calf contains some antitoxic substances which can destroy the virus of vaccine lymph, would seem to be confirmed.

When, however, we come to inquire as to the practical use of the serum of the vaccinated calf, as a therapeutic measure in the treatment of variola in the human being, we are compelled to admit that this antitoxic substance appears to be present in such small quantities as hardly to justify its use. Unless the curative action of this serum against small-pox in man is many times greater than its immunizing effect against vaccinia in the monkey, the quantity required would be greater than could be practically used.

It remains for the discovery of some means whereby the antitoxin can be separated from the serum, or its quantity increased in the blood of the calf. Until this has been accomplished, the use of the serum for the cure of small-pox, except in enormous quantities, 1 to 50 of body weight, can hardly be expected to exert any curative action.

*(To be continued.)*

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A MONUMENT TO LAVOISIER. — The French Institut has decided to open a subscription toward the erection of a monument to Lavoisier in Paris, his native city.

## Recent Literature.

*The Medical Register for New England.* By FRANCIS H. BROWN, A.M., M.D. Eighth edition. Boston: Damrell & Upham. 1895.

The fact that one edition of this Register succeeds another at regular intervals, and that the eighth edition has been reached, testifies sufficiently to its popularity and utility.

This last edition has been thoroughly revised and contains much new matter, especially in regard to Societies, Hospitals and Institutions of recent origin. It is a great convenience to all who have medical interests.

*Twentieth Century Practice.* An International Encyclopædia of Modern Medical Science, by Leading Authorities of Europe and America. Edited by THOMAS S. STEDMAN, M.D. In twenty volumes. Vol. II, Nutritive Disorders. New York: William Wood & Co. 1895.

The subjects treated in this second volume of the "Twentieth Century Practice," under the head of Nutritive Disorders, are: Addison's Disease and other Diseases of the Adrenal Bodies, Diabetes Mellitus, Rheumatism, Gout, Arthritis Deformans, Diseases of the Muscles, Obesity.

This forms a very interesting and important group of systemic derangements, which are still entirely in the hands of the medical practitioner, into none of which has the all-pervading surgeon's knife found an entrance.

The different subjects, in the order given, are treated by Sir Dyce Duckworth, of London; Dr. Carl H. von Noorden, of Frankfort-on-the-Main; Dr. Thomas J. Maclagan, of London; Dr. Henry M. Lyman, of Chicago; Dr. Archibald E. Garrod, of London; the late Dr. Dujardin-Beaumetz, of Paris; Dr. Max J. Oertel, of Munich. The titles of the contributions and the names of the contributors are in this instance a trustworthy indication of the value of the volume to the physician.

Those who are familiar with Maclagan's "Rheumatism: its Nature, its Pathology and its Successful Treatment"; with Lyman's "Practice of Medicine"; with Oertel's theses on Exercise in Affections of the Heart; with Sir Alfred Garrod's writings on Gout and Kindred Diseases, will find themselves at home in this volume. In general, however, these and the other well-known writers give here their maturer judgment and their enlarged experience, and the reader finds between two covers what he must otherwise search for in many different sources.

A very good index at the end of the volume adds materially to its value for the busy man.

*De l'Hysterectomie Vaginale.* By DR. EMILE BAUDRON. Paris. 1894.

The full title of this book explains its scope. It is an account of vaginal hysterectomy applied to the surgical treatment of bilateral lesions of the uterine appendages, and describes the operation of Péan. It is based on a study of the first two hundred cases of Dr. Paul Segond, and contains thirty-eight illustrations. It is of particular interest at this time when this operation is being actively discussed in medical circles.

THE BOSTON

# Medical and Surgical Journal.

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## A NEW THEORY REGARDING THE PHYSIOLOGY OF THE NERVE CENTRES.

It is not unnatural that the various revelations concerning the minute structure of the nervous system, which recent methods of staining are forcing upon us, should lead to new speculations regarding its physiological action. The researches of Golgi, Ramon y Cajal, and all who have followed in their footsteps must be regarded as perhaps the most significant histological advance of the last twenty-five years. It is certainly too early to determine all its physiological bearings, and we must look with interest, it may be, but at the same time with much scepticism, upon broad deductions drawn from anatomical data thus far at our disposal.

A bold theory in explanation of physical and even psychical processes has recently been formulated by Professor Matias-Duval, of Paris, on the basis of our present knowledge of nerve structure, of which we give the essence in the following paragraphs. The paper embodying his ideas was read at a recent meeting of the Société de Biologie of Paris. He first takes up the now almost universally accepted theory of nerve conduction by contiguity rather than by continuity, and speaks of the anatomical arrangement of the terminal processes of cells. As a result of this, it happens that the bridge of transformation of sensory into motor excitation, the reflex centre, is represented not only by a nerve cell, but by articulation of prolongations at a distance. Such agents as strychnia and potassium bromide modify reflex activity, by acting upon cell processes, instead of upon cells themselves. Such an idea is confirmed by what we know of the action of curare upon the terminal arborizations of motor nerves.

By an extension of this theory to all the nerve centres we are much better able to understand the anatomical conditions underlying such phenomena as memory, the association of ideas, imagination, and even to comprehend histologically the results of habit and education.

Thus, recently, E. Tauri[1] remarks, that, since every reiterated functional act causes hypertrophy of the locality of its occurrence, the repeated passage of nerve currents must provoke an hypertrophy of the nerve cells which are in function; if this hypertrophy take place in the sense of an increased length of a prolongation, it will diminish the distance between the parts which ought to communicate; when, by greater proximity, the passage from one to another neuron becomes much facilitated it also becomes unconscious; this is why habitual automatic actions are unconscious. But one may ask whether this be a question of proximity definitely established between the terminal ramifications, or of a facility acquired by these ramifications, through a veritable ameboid property of their protoplasm, of prolonging themselves at a given moment and retracting themselves at another moment.

Wiedersheim's investigations on the brain of Leptodera hyalina[2] and a certain analogy in olfactory cells would indicate the possibility of amebiform movements of nerve cells and their prolongations, in general. The hypothesis of such ameboid movements in the brain cells of man has therefore a certain basis in observed fact. We may, then, believe that the connections between nerve cells in nerve centres are not only by contiguity, pure and simple, but may be more or less intimate under varying circumstances. It may consequently be conceded that imagination, memory and association of ideas become more active under the influence of certain agents (tea, coffee) whose action without doubt (?) would be to excite the amebiform movements of the contiguous nerve extremities, to bring together their ramifications and facilitate the passage of nerve influence.

This conception, which ranks cerebral actions, even the most elevated, with histological processes similar to those which we observe in the ameba and leucocytes, would find its application in the analysis of the phenomena of sleep and waking, and would give us what he (Duval) designates as the *histological theory of sleep*. In an individual who is asleep, the cerebral ramifications of the sensitive central elements of a neuron (see the nomenclature of Van Gehuchten for sensitive neurons) are retracted just as, under the microscope, are the pseudopods of a leucocyte which is anesthetized by absence of oxygen and an excess of carbonic acid. The feeble excitations exerted upon the sensory nerves of a sleeping person provoke reflex actions, but do not pass on into the cells of the cerebral cortex; stronger excitations cause prolongations of the ramifications of the sensitive neuron and, in consequence, the current passes into the cells of the cortex, the result being an awakening, the successive phases of which clearly explain the re-establishment of a series of passages of the nerve current, which, previously, had been inter-

[1] Rivista Sperim. di Frenatria e Med. Leg., 1892.
[2] Anat. Anzg., 1890.

rupted by retraction of the pseudopodic ramifications. But, just as violent and non-habitual excitations will cause retractions in the ameba, in the same way, in man, special excitations will induce retraction of the pseudopods of neurons and the arrest of the corresponding nerve function (acts of inhibition, chorea from nervous interference); and by the same mechanism, violent and abnormal excitations will cause anesthesias and hysterical paralyses.

Researches by M. Azoulay on the pathological anatomy of general paralysis, by methods of Golgi-Cajal, have shown a partial atrophy of nerve tufts in certain motor elements; in other words, a partial disappearance of the pseudopodia of the neurons.

From this the author goes on to quote other evidence from the lower forms of life, and concludes as follows:

"The ideas which we have set forth are a legitimate development of these comparisons. The similarity between a neuron and an ameba may elucidate many other questions than those here indicated. To point out one more, we may show, by the light of this comparison, how vain and how lacking in *raison d'être* the famous hypothesis of the neurility or the indifferent conductibility by a nerve fibre ought to seem and, as a consequence, how much the ingenious but always unprofitable attempts of Paul Bert to induce union between a sensitive and a motor nerve lose in interest. These experiments, which formerly excited our enthusiasm, now seem to us without reason, or resolve themselves into the problem of discovering, after having cut the pseudopod of an ameba, whether this pseudopod can be made to unite with the body of another ameba."

Had the above ideas not been enunciated by a man of recognized scientific attainment, in all seriousness, we should have passed them by without comment. As it is, we can but wonder at the poverty of the evidence, which Professor Matias-Duval regards as sufficient for the maintenance of his hypothesis. It goes without saying that the matter under consideration is one of the utmost subtlety. It concerns itself with an ultimate problem, which to many minds has long been regarded as unsolvable by any means at the disposal of physical science. That imagination, for example, should find its explanation in the ameboid movements of cells and the pseudopodic retractions and prolongations of their processes, savors of anything but exact science.

Altogether to be deprecated, at the present state of our knowledge, are hasty generalizations from the rapidly accumulating but still few facts at our disposal. Psychology cannot fail to be the loser by the formulation of laws which are based on insufficient data, and exact medicine should not be called upon to labor under a heavier burden of unproved hypotheses, than she already has to bear. The ingeniousness of M. Matias-Duval's theory we cannot but admire; the foundation upon which it rests we must regard as altogether insufficient.

## A MEDICAL-PRACTICE LAW IN RHODE ISLAND.

ON May 16th, the Legislature of Rhode Island passed an Act Regulating the Practice of Medicine. This Act, a copy of which is before us, is to take effect sixty days after its passage, and provides that the necessary qualifications for practising medicine in Rhode Island shall be either "a diploma from a reputable and legally qualified medical college, endorsed as such by the State Board of Health," or satisfactory evidence that the physician desiring to qualify was reputably and honorably engaged in the practice of medicine in Rhode Island prior to January 1, 1892. Any person, not qualified as above described, must submit himself to such examination as the State Board of Health may require. Ten dollars must be paid by the applicant to defray the expenses of the examination.

Section 4 provides that no itinerant doctor shall be allowed to register or to practice medicine in any part of the State.

The Act further provides that the State Board of Health may refuse certificates, or revoke certificates already issued, to any individual guilty of grossly unprofessional conduct of a character likely to deceive or defraud the public. Appeal from the decision of the Board may be made to the Supreme Court, whose decision shall be final.

Section 6 provides that no discrimination shall be made against any particular school or system of medicine, and that women shall not be prevented from practising midwifery.

The penalty for violation of the law is a fine of fifty dollars for the first offence, and a fine of one hundred dollars and imprisonment for thirty days, or either or both, for every subsequent conviction.

The phrase "engage in the practice of medicine" within the meaning of the law is defined as opening an office for such purpose, or announcing to the public in any other way a readiness to practise medicine or surgery in the State.

The State of Rhode Island is to be congratulated upon having secured at length a medical practice law which is excellent in many of its provisions. The efforts which have been made for many years to secure such legislation have at length borne fruit in the passage of the Act of which we have given an abstract above, and these efforts would have been well worth while if nothing had been secured but the passage of the clause preventing itinerant physicians from practising in the State. The physical and financial harm done by these travelling quacks and impostors can hardly be overestimated.

Under the Act the State Board of Health is made responsible for the enforcement of its provisions, and will have entire charge of the examination of candidates and their credentials. Upon the intelligence, honesty and faithfulness of this board the value of the law to the people of the State will absolutely depend. Let them see to it that their work is well and faithfully done.

One clause in the law can well be criticised, namely, that one which allows women to practise midwifery without registration or examination, as if midwifery were a branch of medicine in which ignorant and fraudulent practitioners could do no harm, and therefore no legislation on the subject were required.

The law on the whole, however, is a distinct step in advance, and one which will undoubtedly accomplish much for the protection of the people of the State against unqualified practitioners.

## MEDICAL NOTES.

Bacteria in Clothing. — Dr. Leitz of Munich, according to *La Médecine Moderne*, has found that a little disc three millimetres in diameter, which has been placed upon a woollen stocking which has been worn, produced 356 colonies on nutrient gelatin. A cotton stocking gave 712 colonies. From a glove which had not been worn, 33 colonies were obtained. Among the colonies there are always a few pathogenic bacteria, the staphylococcus pyogenes albus being the commonest. Leitz has found the typhoid bacillus in clothing after twenty-one and twenty-six days; the anthrax bacillus obtained from cloth was virulent at the end of a year. An encouraging fact was that the linen of tubercular patients after profuse night-sweats, did not apparently contain the tubercle bacillus; the results of inoculation were negative.

A Special Football Lesion. — In the *Centralblatt für Chirurgie*, No. 16, 1895, is an abstract of an article by Magg (*Hospitals Tidende*) in which he states that he regards a subpatellar bursitis, a lesion which he has frequently observed in football players, as a special lesion due to the repeated action of the quadriceps femoris muscle in kicking.

The Association of German Alienists. — The Association of German Alienists will hold its annual meeting this year in Hamburg, on September 13th and 14th. The following are the principal questions on the programme: "The Diagnostic and Prognostic Significance of the Knee Phenomenon in Mental Diseases" (to be introduced by Dr. A. Cramer, of Göttengen); "Action-bringing Insanity in its Nosological and Forensic Relations" (to be introduced by Dr. Koppen, of Berlin); "Transitory Mental Disorders of Epileptics in their Medico-Legal Relations" (to be introduced by Professor Siemerling, of Tübingen.

Music for the Sick Poor of Paris. — A French gentleman, M. Guzman, has left 50,000 francs to the Assistance Publique, the Paris Municipal Charity Department, to defray the cost of musical entertainments to be given to the sick poor in the hospitals and asylums under its control.

Symphysiotomy at the Maison Bandelocque. — In the report of the Maison Bandelocque for 1894, Pinard reports that during the year 21 symphyseotomies were performed in the service, 12 on primiparæ and nine on multiparæ. Of the 12 primiparæ there was one death from septicemia with suppuration of the wound on the tenth day. Of the children 11 lived. Only one died during labor. Among these 12 cases, ten were face presentations, one of them being a brow. Among the nine multiparæ there was one death from puerperal sepsis. All the children were born alive, except one in whom numerous attempts at forceps delivery prior to admission to the hospital had produced multiple fractures of the skull. Of the 21 operations 17 were performed in cases of vertex, two of face, two of breech presentations. One woman had symphyseotomy performed twice with perfect result as to both mother and child.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — During the week ending at noon, June 12, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 101, scarlet fever 38, measles 140, typhoid fever 7.

Hospital for Consumptives.—The bill to establish the Massachusetts Hospital for Consumptives and Tubercular Patients has been passed by the Massachusetts House of Representatives with an amendment making the establishment of the hospital mandatory instead of permissive.

The Massachusetts Medical Society. — The Committee of Arrangements for the meeting this year have, as stated in their announcement, made special efforts to make the visit of the members attractive and profitable. The arrangements for entertainment at the theatres and concerts, the harbor excursion, etc., can hardly fail to add greatly to the enjoyment of the visitors. The committee are to be commended for the enterprise shown in their preparations for the entertainment of the visiting physicians.

The American Neurological Association. — The members of the Association during their recent meeting in Boston were entertained at luncheon on Wednesday, June 5th, at the Hotel Vendome by Dr. James J. Putnam, Dr. Morton Prince, Dr. Henry R. Stedman and Dr. William N. Bullard. In the evening there was a reception to the members at the University Club, under the auspices of the Boston Medico-Psychological Society, to which were invited also the staffs of the Massachusetts General and Boston City Hospitals and the Faculty of the Harvard Medical School. On June 6th the Association accepted an invitation from the Trustees of the Massachusetts General Hospital to visit the new McLean Hospital at Waverly. The annual dinner took place at the University Club on Thursday evening.

### NEW YORK.

The Janitors of Public Schools. — In the future the public schools are not likely to be closed on account of the presence of contagious disease in janitors' families. At a meeting of the Board of Education held June 5th the report of the committee on

buildings recommending that all janitors be required to reside outside of the school-houses was taken up and adopted, and the Board voted to ask the Board of Estimate and Apportionment for $4,000 additional appropriation for janitors' salaries, or so much of that sum as may be necessary to enable them to secure living quarters elsewhere than in the school buildings.

Dr. Doty's Change of Route. — Health-Officer Doty, who started for Cuba recently, found when he arrived at Tampa that the United States Medical Inspector, Dr. Burgess, had left Cuba. Consequently he decided not to go there, and continued his trip to New Orleans, where he has been examining the new quarantine station.

Early Opening of the Swimming Baths. — Twelve of the fifteen free swimming baths situated along the East and Hudson Rivers were opened to the public on June 5th. This is considerably earlier than the usual date for opening, and the change was made on account of the intense heat of the early days of June.

Deaths from Heat. — On Monday, June 3d, the last day of the hot weather, the coroners were called upon to attend no less than fifty-eight cases of sudden death, a large proportion of which were due more or less directly to the heat.

Death of Dr. J. Marshall Hawkes. — Dr. J. Marshall Hawkes, of New York, died suddenly after an operation for the relief of complicated mastoiditis on May 26th. Dr. Hawkes was a graduate of the College of Physicians and Surgeons, New York, and was especially identified with orthopedic surgery. He was best known by his invention of the paper jacket as a support in disease of the spine.

Death of Dr. William B. Wallace and Dr. Alphonse M. Wallace. — Dr. William B. Wallace and his son, Dr. Alphonse M. Wallace, both died of pneumonia on June 7th. The elder Dr. Wallace was taken ill on May 25th. The attack was a very severe one, but he successfully passed the crisis and was thought to be on the way to recovery when he began to fail and he rapidly succumbed. He was born in County Limerick, Ireland, fifty-three years ago, and was educated for the priesthood at Mount Mellery College. He decided to abandon this career, however, and entered All Hallows' College, Dublin, where he took his degree in Arts. In 1868 he came to this country and studied medicine at the College of Physicians and Surgeons, New York, where he was graduated in 1871. He soon built up a large practice and at the time of his death he was visiting physician to the City Hospital (Charity) on Blackwell's Island, and consulting physician to St. Joseph's Hospital, Yonkers. It was as an ardent Irish patriot that Dr. Wallace was best known to the public. He was considered one of the most eloquent orators among his countrymen in America, and he was a leader in all the Irish national movements inaugurated here. He was one of the organizers of the Irish National Land League of America, and when that went out of existence, 1882, he was one of the chief promoters of its successor, the Irish National League of America. When the Irish Parliamentary party became divided owing to the Parnell divorce case, Dr. Wallace became an advanced anti-Parnellite, and with Dr. Thomas Addis Emmet and other well-known Irishmen, formed the Irish Federation of America, of which he was elected Vice-President, an office he held at the time of his death. The younger Dr. Wallace was a devoted watcher by the bedside of his father, and four days after the latter's illness commenced was himself taken with pneumonia. He died within twelve hours of his father. Dr. Alphonse Wallace was born in New York and was twenty-seven years of age. He was educated in the public schools and St. Francis Xavier College, and received the degree of M.D. from the College of Physicians and Surgeons in 1888. He afterwards served as house physician at St. Vincent's Hospital, and for four years had been an examining physician of the Department of Charities and Correction. He was a widower, his wife having died two years ago. They had no children. The elder Dr. Wallace left a widow, two sons and three daughters. The funerals of father and son were held together at St. Patrick's Cathedral on June 10th.

## Miscellany.

### SUDDEN DEATH.

In his book on "Death and Sudden Death," M. Brouardel gives a number of causes of sudden death which are little known, and fortunately extremely rare. Gonorrhea, for instance, may lead to sudden death. Four or five cases of sudden death from gonorrhea in the male have been reported in Germany. In France only one case has been reported. The medico-legal autopsy showed a phlebitis in the prostatic venous plexus and pulmonary embolism. Of a similar nature was the case of a girl of sixteen upon whom Brouardel performed the autopsy. A gonorrhea resulted in phlebitis of the veins of the left broad ligament, which was followed by thrombosis of the left iliac vein, and fatal embolism.

In such a condition as this, in a pregnant or a non-pregnant woman, with disease of the adnexa, or uterus, an ordinary vaginal examination may be the cause of sudden death. In addition to a case seen by Brouardel while he was an interne, he has twice seen cases of this sort, namely, sudden death from vaginal examination, in a physician's office. Lovain had a case in which sudden death of a young girl was caused by a vaginal douche given in the treatment of gonorrhea. It is well to remember that vaginal examination may have a result less grave, but none the less important from the point of view of the physician's responsibility. M. Tarnier has reported that two women upon whom he had practised vaginal touch aborted on the same evening, and that neither of them could[1] be suspected of having taken any measures to bring on abortion.

[1] La Médecine Moderne.

## THE LATEST REPORT ON ANESTHETICS.

At the German Surgical Congress, Gurlt, of Berlin, made a report on anesthesia, which is of great interest. During the year, he had examined 77 reports from operators, 63 of whom were Germans. The reports embraced 51,957 anesthesias, of which 31,083 were produced by chloroform, 15,712 by ether, 2,148 by chloroform and ether, 1,554 by A. C. E. mixture, 1,426 by bromide of ethyl, and 34 by pental. There were 23 deaths under chloroform, to which may be added eight in which the cause of death was doubtful, five deaths from ether, and none from the mixture.

The complete statistics of anesthesia now extend over 266,151 cases. Chloroform has been fatal in one out of 2,909, ether in one out of 6,004, ether and chloroform mixture in one out of 10,162, A. C. E. mixture in one out of 5,745. The ether statistics are therefore rather more favorable than those of chloroform, especially considering the doubtful cases alluded to above.

Severe pneumonia has followed etherization in a not inconsiderable number of cases, namely, 30, and has proved fatal in 15, of which 13 were operations on the abdominal cavity. The explanation of this is found in the fact that patients who have undergone abdominal section avoid coughing as far as possible, on account of the pain in the wound which it causes. Thus the pneumonia is allowed to progress. As far as possible, therefore, ether should be avoided in abdominal operations.

In the discussion which followed Trendelenburg and Landau spoke strongly in favor of ether as an anesthetic.

## Correspondence.

### "END OF A VACCINE VIRUS CONTROVERSY."

ROXBURY, MASS., June 7, 1895.

MR. EDITOR: — Owing to a similarity of names, there has been some confusion in regard to the legal controversy above referred to.

The plaintiff in that case was my mother, the widow of Dr. Henry A. Martin. Since the death of her son, Dr. Stephen C. Martin, the production of vaccine virus at Brookline has been carried on by A. A. Reed for a few months, and for the last year by Dr. Everett M. Bowker. Dr. Bowker did business under the title of "Dr. Everett M. Bowker, successor to Dr. Henry A. Martin & Son." My mother sought to enjoin him from the use of her husband's name of "Henry A. Martin" as a part of his business designation; but our Supreme Judicial Court has just decided that he may continue under this designation; in fact, deciding that the words "successor to Henry A. Martin & Son" are mere words of description, and not a part of his business name, and has dismissed her bill. This leaves the parties exactly where they were before any bill was brought, but does not give Dr. Bowker any additional rights whatever. He may continue to do business under the title of "Dr. Everett M. Bowker, successor to Dr. Henry A. Martin & Son," but that is all.

This legal controversy in no way affects my business of producing vaccine virus, which I have continued uninterruptedly since the death of my brother, Dr. Stephen C. Martin, under my own name.

The threat of prosecution at the end of the item referred to is plainly meant for me, but with the above explanation it will be seen that it has no foundation whatever, and is absurd.

Very respectfully,

FRANCIS C. MARTIN, M.D.

[The JOURNAL must consider this correspondence as closed. — ED.]

## METEOROLOGICAL RECORD,

For the week ending June 1st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer: Daily mean. | Thermometer: Daily mean. | Thermometer: Maximum. | Thermometer: Minimum. | Relative humidity: 8.00 A. M. | Relative humidity: 8.00 P. M. | Relative humidity: Daily mean. | Direction of wind: 8.00 A. M. | Direction of wind: 8.00 P. M. | Velocity of wind: 8.00 A. M. | Velocity of wind: 8.00 P. M. | We'th'r.*: 8.00 A. M. | We'th'r.*: 8.00 P. M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S ..26 | 29.86 | 58 | 64 | 53 | 99 | 91 | 95 | E. | S.E. | 6 | 9 | R. | O. | .12 |
| M..27 | 29.68 | 64 | 76 | 53 | 90 | 81 | 86 | S. | W. | 11 | 8 | O. | F. | .25 |
| T ..28 | 29.91 | 57 | 65 | 49 | 64 | 64 | 64 | W. | W. | 10 | 19 | O. | O. | |
| W..29 | 30.02 | 66 | 78 | 54 | 60 | 57 | 58 | N.W. | N.E. | 2 | 11 | F. | C. | |
| T ..30 | 29.96 | 69 | 77 | 58 | 60 | 60 | 60 | N.E. | S.W. | 14 | 2 | C. | F. | |
| F..31 | 29.86 | 78 | 90 | 65 | 48 | 60 | 54 | N. | N. | 8 | 10 | F. | O. | |
| S... 1 | 29.92 | 72 | 78 | 66 | 48 | 85 | 66 | N. | N. | 9 | 9 | C. | R. | .03 |
| ☞ | | | | | | | | | | | | | | |

* O., cloudy; C., clear; F., fair; O., fog; H., hazy; S., smoky; R., rain; T., threatening; F., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 1, 1895.

| Cities. | Estimated population. | Reported deaths in week. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diarrheal diseases. | Diphtheria and croup. | Measles. |
|---|---|---|---|---|---|---|---|---|
| New York | 1,956,000 | 756 | 321 | 17.03 | 11.31 | 5.72 | 5.72 | 3.51 |
| Chicago | 1,200,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 405 | 165 | 13.50 | 15.50 | 1.00 | 5.50 | .50 |
| Brooklyn | 1,043,000 | 405 | 140 | 14.00 | 13.25 | 1.75 | 7.00 | 1.00 |
| St. Louis | 540,000 | — | — | — | — | — | — | — |
| Boston | 501,167 | 182 | 53 | 7.70 | 17.08 | 1.22 | 1.22 | 1.22 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 82 | 24 | 8.54 | 17.08 | 1.22 | 1.22 | — |
| Cincinnati | 325,000 | 109 | 31 | 11.96 | 14.72 | — | — | 4.60 |
| Cleveland | 220,000 | 82 | 22 | 8.54 | 17.08 | 4.88 | — | 1.22 |
| Pittsburg | 272,000 | — | — | — | — | — | — | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 36 | 5 | — | 16.68 | — | — | — |
| Charleston | 65,185 | 43 | 19 | 6.99 | — | 6.99 | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 20 | 6 | 20.00 | 20.00 | — | 15.00 | — |
| Fall River | 92,233 | 26 | 13 | 30.80 | — | 19.25 | 3.85 | — |
| Lowell | 90,613 | 22 | 3 | 13.65 | 9.10 | 4.55 | 9.10 | — |
| Cambridge | 79,607 | 24 | 6 | 12.48 | 24.96 | — | 4.16 | — |
| Lynn | 68,123 | 20 | 8 | — | 5.00 | — | — | — |
| Springfield | 50,294 | 20 | 8 | 30.00 | 20.00 | 5.00 | — | 25.00 |
| Lawrence | 49,909 | 20 | 5 | 15.00 | 15.00 | — | — | — |
| New Bedford | 47,741 | 10 | 3 | — | 10.00 | — | — | — |
| Holyoke | 43,349 | — | — | — | — | — | — | — |
| Brockton | 33,393 | 2 | 0 | — | — | — | — | — |
| Salem | 33,158 | 11 | 1 | — | — | — | — | — |
| Haverhill | 32,925 | 6 | 5 | 16.66 | — | — | — | 16.66 |
| Malden | 30,209 | 5 | 2 | 20.00 | — | — | 20.00 | — |
| Chelsea | 29,866 | — | — | — | — | — | — | — |
| Fitchburg | 29,283 | 10 | 2 | 10.00 | 20.00 | 10.00 | — | — |
| Newton | 28,837 | 13 | 2 | 15.38 | 15.38 | — | 7.69 | 7.69 |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,964 | 7 | 4 | — | — | — | — | — |
| Waltham | 22,058 | 6 | 2 | — | 50.00 | — | — | — |
| Quincy | 19,642 | — | — | — | — | — | — | — |
| Pittsfield | 18,862 | 2 | 0 | — | 50.00 | — | — | — |
| Everett | 16,585 | 1 | 0 | — | — | — | — | — |
| Northampton | 16,331 | 5 | 2 | — | — | — | — | — |
| Newburyport | 14,073 | 3 | 0 | — | 33.33 | — | — | — |
| Amesbury | 10,920 | 4 | 0 | 25.00 | 25.00 | — | — | — |

Deaths reported 2,443; under five years of age 816; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 324, acute lung diseases 309, consumption 329, diphtheria and croup 113, diarrheal diseases 53, measles 62, scarlet fever 32, whooping-cough 19, typhoid fever 29, cerebro-spinal meningitis 6, erysipelas 6, small-pox 2.

From scarlet fever New York 14, Brooklyn 4, Philadelphia, Boston, Cleveland and Lawrence 2 each. Washington, Providence, Cambridge and Amesbury 1 each. From whooping-cough New York 10, Cincinnati 3, Brooklyn 2, Philadelphia, Boston, Providence and Cambridge 1 each. From typhoid fever Philadelphia 8, New York and Brooklyn 5 each. Boston, Cleveland, Fall River and North Adams 2 each. Washington, Cincinnati and Lawrence 1 each. From cerebro-spinal meningitis New York 3, Cleveland, Worcester and North Adams 1 each. From

erysipelas New York 4, Philadelphia 2. From small-pox New York and Cincinnati 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending May 25th, the death-rate was 17.4. Deaths reported 3,529; acute diseases of the respiratory organs (London) 245, whooping-cough 95, measles 84, diphtheria 64, diarrhea 55, fever 29, scarlet fever 26.

The death-rates ranged from 9.5 in Croyden to 27.3 in Liverpool, Birmingham 15.5, Bradford 17.3, Cardiff 15.1, Gateshead 12.0, Hull 14.9, Leeds 17.5, Leicester 11.8, London 16.3, Manchester 26.0, Newcastle-on-Tyne 21.4, Nottingham 17.9, Oldham 17.7, Sheffield 14.6, West Ham 18.6.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 1, 1895, TO JUNE 7, 1895.

So much of the order as directs CAPTAIN RUDOLPH G. EBERT, assistant surgeon, to report in person to the commanding officer, Fort Columbus, New York, for duty at that post is amended to direct him to report for duty at Vancouver Barracks, Washington, relieving CAPTAIN WILLIAM H. ARTHUR, assistant surgeon.

CAPTAIN ARTHUR on being thus relieved, will report for duty at Fort Columbus, New York.

Leave of absence for one month and fifteen days, to take effect on his arrival in New York City, en route to his station in the Department of the East, is granted MAJOR TIMOTHY E. WILCOX, surgeon, U. S. Army.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 8, 1895.

J. E. GARDNER, surgeon, detached from Naval Station, New London, Conn., and wait orders to sea duty.

CLEMENT BIDDLE, passed assistant surgeon, detached from Naval Hospital, Chelsea, Mass., and to naval station, New London, Conn.

FRANKLIN ROGERS, surgeon, detached from U. S. R. ship "Wabash," and to the Navy Yard, Boston, Mass.

J. L. NEILSON, surgeon, detached from Navy Yard, Boston, Mass., and to the U. S. R. S. "Wabash."

## SOCIETY NOTICE.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The fifty-first Annual Meeting of this Association (late Association of Medical Superintendents of American Institutions for the Insane, founded in 1844), will be held at the Brown Palace Hotel, Denver, Col., June 11, 12, 13 and 14, 1895.

HENRY M. HURD, M.D., *Secretary.*

## BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Medical Society of Virginia. Twenty-fifth Session. Richmond, Va. 1894.

Early Diagnosis of Cancer of the Uterus. Chloroform in Labor. By Edwin Ricketts, M.D., Cincinnati, O. 1895.

A Modification of Hedin's Hematokrit. By W. F. Arnold, M.D., passed assistant surgeon, U. S. Navy. Reprint. 1894.

Malattie Predominanti Nei Paesi Caldi e Temperati. Dott. Filippo Rho, Medico di 1st classe nella Regia Marina. Roma. 1895.

The Significance of the Presence of Lactic Acid in the Stomach. By Julius Friedenwald, A.B., M.D., Baltimore. Reprint. 1895.

The Etiology, Pathology, and Treatment of Intestinal Fistula and Artificial Anus. By N. Senn, M.D., Ph.D., LL.D., Chicago. Reprint. 1894.

A New Method of Examination and Treatment of Diseases of the Rectum and Sigmoid Flexure. By Howard A. Kelly, M.D., Baltimore. Reprint. 1895.

Indigestion, an Introduction to the Study of the Diseases of the Stomach, by George Herschell, M.D., London. Second Edition. New York: G. P. Putnam's Sons. 1895.

The Surgical Treatment of Inguinal Hernia. By Henry O. Marcy, M.D., Boston, Mass. Reprinted from the Transactions of the New York State Medical Association, Vol. 11, 1894.

The International Medical Annual and Practitioner's Index; a Work of Reference for Medical Practitioners. By Thirty-seven editors. Thirteenth year. New York: E. B. Treat. 1895.

Infection and Immunity, with Special Reference to the New Diphtheria Anti-Toxine. By Charles Russell Bardeen, B.A., Assistant in Histology, Johns Hopkins University. Reprint. 1895.

Medical Gynecology; a Treatise on the Diseases of Women from the Standpoint of the Physician. By Alexander J. C. Skene, M.D. With illustrations. New York: D. Appleton & Co. 1895.

Leçons de Chirurgie (La Pitié 1893-94) par le Dr. Felix Lejars, Professeur Agregé à la Faculté de Médecine de Paris, Chirurgien des Hôpitaux, avec 128 figures dans le texte. Paris: G. Masson. 1895.

Transactions of the Sixteenth Annual Meeting of the American Laryngological Association, held in the City of Washington, D. C., May 30, 31 and June 1, 1894. New York: D. Appleton & Co., 1895.

A Bacteriologic Study of Oysters, with Special Reference to Them as a Source of Typhoid Infection. By Charles J. Foote, Demonstrator of Bacteriology in the Medical Department of Yale University. Reprint. 1895.

Seventeenth Annual Report of the State Board of Health of the State of Connecticut, with the Registration report for 1893, Relating to Births, Marriages, Deaths and Divorces. New Haven: Printed by the State. 1895.

Transactions of the Obstetrical Society of London (Vol. XXXVI, for the year 1894. Part IV, for October, November and December. Edited by William Duncan, M.P., Senior Secretary, and Percy Boulton, M.D. London: Published by the Society. 1895.

The Evolution of the Diseases of Women, by W. Balls-Headley, M.A., M.D. (Cantab.) F.R.C.P. (London.) Lectures on Midwifery and the Diseases of Women at the University of Melbourne. London: Smith, Elder & Co. Melbourne and Sidney: George Robertson & Co. 1894.

Fourth Biennial Report on Vital Statistics of the State of Minnesota for the Years 1892-93, With a Comparative Study of the Leading Causes of Mortality in Minnesota for the Quinquennial Period 1887-93. Arranged and Edited by Charles N. Hewitt, A.M., M.D., Secretary of the Board of Health and Vital Statistics. 1895.

Immunity, Protective Innoculations in Infectious Diseases, and Serum Therapy by George M. Sternberg, M.D., LL.D., Surgeon-General U. S. Army, Ex-President American Public Health Association; Honorary Member of the Epidermiological Society of London, of the Royal Academy of Medicine of Rome, etc. New York: William Wood & Co. 1895.

Tumors of the Vagina, Considered in the Obstetrical Point of View. Note on the Pathology and Treatment of Osteomalacia, With Report of a Case Cured by Bilateral Oöphorectomy. Parietal Fibro-Myomata of the Uterus, and Professor Vulliet's Operation for their Extraction. By Charles Greene Cumston, B.M.S., M.D., Boston, Mass., Instructor of Clinical Gynecology, Faculty of Medicine, Tufts College. Reprint. 1895.

The Prevention of Epidemics and the Construction and Management of Isolation Hospitals. By Roger McNeill, M.D., Edin., D.P.H., Camb., Medical Officer of Health for the County of Argyll; formerly Resident Medical Officer Infectious Hospitals of the Metropolitan Asylums Board at Homerton and Deptford, London, and H. M. S. "Atlas" and "Endymion," Greenwich. With illustrations. Philadelphia: P. Blakiston, Son & Co. 1895.

Therapeutic Suggestion in Psychopathia Sexualis; With Especial Reference to Contrary Sexual Instinct. By Dr. A. von Schrenck-Notzing (Munich, Germany). Authorized translation from the German by Charles Gilbert Chaddock, M.D., Professor of Diseases of the Nervous System, Marion-Sims College of Medicine, St. Louis; Member of the American Medico-Psychological Association; Attending Neurologist to the Rebekah Hospital, St. Louis, Mo., etc., etc. Philadelphia: The F. A. Davis Co. 1895.

Edwards' Hygiene with Anatomy and Physiology, being an Amplification of Edwards' Catechism of Hygiene. By Joseph F. Edwards, A.M., M.D., Member of the State Board of Health of Pennsylvania; Member of the American Public Health Association; Foreign Associate Member of the French Society of Hygiene; Fellow of the College of Physicians of Philadelphia; Member of the Philadelphia County Medical Society; Editor of the Annals of Hygiene, etc. Intended for schools and general reading. New York: Edward P. Strom. 1894.

A Textbook of Chemistry, Intended for the Use of Pharmaceutical and Medical Students. By Samuel P. Sadtler, Ph.D., F.C.S., Professor of Chemistry in the Philadelphia College of Pharmacy; Author of "A Handbook of Chemical Experimentation," "A Handbook of Industrial Organic Chemistry," and Chemical Editor of the United States Dispensatory; and Henry Trimble, Ph.D., Professor of Analytical Chemistry in the Philadelphia College of Pharmacy; author of "Practical and Analytical Chemistry," and of a monograph on "The Tannins." Philadelphia: J. B. Lippincott & Co. 1895.

## Original Articles.

### THE TREATMENT OF ADVANCED (HOPELESS) CASES OF PHTHISIS.[1]

BY EDWARD O. OTIS, M.D.,
*Visiting Physician to the "Free Home for Consumptives."*

It is human nature to evince a more lively interest in any undertaking which offers a reasonable hope of success, than in one in which the result is inevitably failure.. This is true in medical work as well as in other departments of labor. The acute or chronic disease which possesses the possibility of a cure naturally excites in the physician that eagerness of the chase, that enthusiasm in its treatment which the hopeless case does not. Every true physician, however, with love and sympathy for his kind, recognizes the duty of employing the same conscientious care in the treatment of his hopelessly sick patients as in that of those who offer the possibility of a cure. "Here it is," says Musser,[2] "that the exercise of the high and holy qualities typified of old by the Master Physician are essential." Moreover, quite as much skill and judgment are often required in the care of the former class; and the experience one gains is not only of exceeding value but available in any and all varieties of medical work.

In this climate and region, advanced cases of phthisis are by far the most common of this hopeless class. Every general practitioner has his share of them. They are long drawn out and possess an infinitude of ills, and demand fertility of resources and a large knowledge and skilful use of therapeutic expedients. But it is no unworthy goal to strive for, to make the lingering and weary days of the consumptive as comfortable and free from pain as the conditions will allow. Surely no class of patients are more grateful to the physician for his exertions in their behalf.

A patient with advanced phthisis is very frequently in a state of sepsis, and presents the various symptoms of the septic condition; the peculiar temperature, sweating, chills, cardiac debility, progressive muscular weakness, and loss of flesh, etc. A clear recognition of this fact will aid greatly in our intelligent treatment. In addition, of course, there are the various symptoms which are the result of the tubercular virus and its ravages; cough, vomiting, diarrhea, hemorrhage, various digestive disturbances, pains, pleuritic and others; catarrhal and irritable conditions of the upper air-passages, nervous instability, insomnia, and others.

I. The Sick-Room. — Patients in this stage of the disease have their lung capacity greatly reduced; the average of a dozen male patients I found to be 90 cubic inches, the normal average being 235.7. Consequently they need a large supply of oxygen, and it is of the first importance that they should be in an airy, well-ventilated room. If one is well covered in bed or protected from a direct draught the window can almost always be kept open even in the colder portions of the year. An open fireplace is very desirable, and sunlight a necessity; it is a tonic and antiseptic and conduces to a cheerful mental condition. If we spent as much care and pains in giving our phthisical patients sunlight as we do creosote, I believe we should obtain as good results and in a more agreeable manner.

II. Food. — The feeding of these patients is a very difficult and delicate matter; more or less anorexia exists, the digestive powers are impaired, the appetite is capricious, and vomiting not infrequent. If the patient is able to be about, the three regular meals may be taken with supplementary lunches, such as milk and egg, koumiss, cream and hot water, bouillon, cocoa or coffee with bread or biscuit, a glass of porter, ale, or some light wine. Often no regular meals are possible the digestion and appetite are so impaired, and then one must have recourse to frequent feeding with small amounts of easily digested or partially digested food. Milk, either plain or with some alkali — lime-water or soda-water, Vichy, Seltzer, Apollinaris; raw eggs with a little alcohol in some form, sherry, whiskey, or port; carefully prepared soups; some of the various beef juices or extracts; peptonized foods. I have found the liquid peptonoids very serviceable; some of the malt preparations can also be used. Even with the most careful feeding various digestive disturbances will arise and persist which call for special treatment.

The most generally serviceable combination for these disturbances I have found to be the pepsin, bismuth and charcoal tablet of Wyeth, which seems to meet a variety of unpleasant symptoms. For flatulence aromatic spirits of ammonia, bismuth, bicarbonate of soda, tincture of cardamon, creosote or napthol. For pain after eating, Dettweiler finds salicylate of bismuth of service. For the anorexia nothing seems to avail for any length of time; the various bitter tonics in various combinations for a while aid — gentian, cinchona, quassia, quinine, nux vomica, strychnia, malt. The mineral acids may also be combined with some of these.

It was almost a routine practice in my service at the Free Home for Consumptives to give all, except the extreme cases, malt with creosote, often combined with cod-liver oil when no fever existed, and it has seemed to me that this combination not only assisted the appetite but the digestion as well. As to alcohol, I have used it freely in its various forms. Necessary, as a rule, in all stages of this disease, it is especially so in the advanced stage. I have found whiskey, brandy, and the malt liquors the most generally serviceable.

III. Fever. — The fever of advanced phthisis is generally the result of septic absorption from suppurating cavities or foci, and unless it produces unpleasant symptoms it is my experience that direct treatment is uncalled for, and is a menace to the already weakened heart. The inunction of guaiacol has been tried for this purpose and it does produce a most marked and rapid reduction in temperature but at the same time a depression which is often alarming, and the same danger exists to a less extent in the use of all the coal-tar antipyretics. The patient with fever should be kept in bed and free from excitement, given easily assimilable liquid nourishment, and from one-half to one hour before the expected rise of temperature a glass of Cognac and water or strong wine.

This is the plan pursued at the Sanitarium of Görbersdorf, and generally by the German specialists in this disease. An ice-bag over the heart is much used also by the Germans, but my limited experience is in accord with that of Wolff, that seldom does any

[1] Read before the Clinical Section of the Suffolk District Medical Society, March 20, 1895.

[2] The Treatment of the Final Stage of Phthisis, J. H. Musser, Medical News, Philadelphia, October 15, 1892.

definite result follow its use.[3] If the fever has daily exacerbations and is productive of much discomfort, we are obliged to have recourse to some direct antipyretic; antipyrine, thallin, antifebrin, salicylate of soda or phenacetine may be used, but cautiously. Daremberg[4] with the characteristic French enthusiasm, says the treatment of the fever of tuberculosis was revolutionized when Knorr discovered antipyrine, but few of us, I think, would agree with him. The antithermic, he says, should be used to prevent the rise of temperature rather than to lower it after it has risen, and consequently should be given three or four hours before the expected rise or exacerbation. Of the various antipyretics mentioned perhaps phenacetine is the least harmful and given in small doses as Yeo[5] recommends, two or three grains in combination with hydrobromate of quinine two to four grains. When antipyrine is used and there is an inclination to sweating, Székely[6] advises the use of atropia or agaracin half an hour before the antipyrine is given. It is also advised to give it an hour before, or two hours after eating. A preparation known as pyretine, the composition of which is unknown to me, and which was first called to my attention by my colleague, Dr. Fillebrown, has given me as good results with as few evil effects as any of the antipyretic group. Salicylic acid and salicylate of soda so highly extolled by Jaccoud[7] for the fever of phthisis, is especially useful, says Székely, in the fever of resorption (septic). It should be given, he says, in the late evening, and to avoid the annoying ringing in the ears, combined with ergot. My experience with it, however, has not been very satisfactory. If the fever is continuous no antipyretic is of much avail, but if used, should be given before the fever has reached its height, otherwise sweating and vomiting may be produced.

IV. SWEATING. — This is not an infrequent occurrence in advanced phthisis, and is another of the symptoms of the septic condition which prevails so largely as I have said in the latter days of the disease. Simple means will often serve to modify or avert this troublesome symptom; a glass of milk with two or three teaspoonfuls of brandy at bedtime, together with gentle friction either dry or with alcohol or vinegar and water. The drugs for this symptom are numerous: atropia, ergot, picrotoxine, oxide of zinc, camphoric acid, chloralose, extract of Coto bark (strongly recommended by Székely), and agaracin. Of all the antisudorifics I have used, agaracin has been the most satisfactory, given in doses of one-twelfth of a grain or larger; as its action is slow it must be given early. Atropia is efficient, but its after-effects are not always agreeable, and after my favorable experience with agaracin, I have abandoned its use.

V. COUGH. — No one symptom is so distressing to the patient and all about him as his cough; it harasses him by day and renders his nights wretched. From the very nature of the conditions he must cough much, for the material secreted from the various diseased areas is constantly collecting and must be expelled. This constant coughing keeps the mucous membranes of the upper air-passages in a state of continual irritation; so that the poor sufferer is subjected to a two-fold stimulus to cough, one from below and the other from above. Cough he must sufficiently to expel the secretion; but cough he does, as a rule, far more than is necessary to accomplish this. Now this unnecessary and useless coughing can, to a greater or less extent, be restrained by proper training. One must establish a coughing method, and learn how to cough with effect and economy of strength, and to restrain the dry, unproductive cough. Daremberg speaks of taking lunch at Falkenstein with Dettweiler and his one hundred and fifty phthisical patients, and not hearing a cough ten times in three-quarters of an hour. In expressing his wonder at so little coughing among so many tuberculous patients, Dettweiler replied that he taught his patients not to cough, by telling them that when they itched in public they did not scratch, and that cough without expectoration was a scratching of the throat which itched, and, therefore, they should not scratch the throat in public.

The medicinal treatment of the cough, and in this stage it must be treated medicinally, includes the whole materia medica pretty nearly; but opium in some form is the one drug upon which we must chiefly rely. As some one has said, "Without opium the treatment of phthisis would be impossible." My experience coincides with that of Wolff,[8] that codeia is the most useful form of this drug. It does not disturb the stomach as other forms of opium often do, and it quiets the cough. After a trial of a variety of cough preparations, I obtained the most satisfactory results when almost every patient in the hospital was put upon this drug. I used a watery solution in the proportion of 1 to 100. It can be given frequently, and a couple of teaspoonfuls of the solution at night will generally produce a good night's rest.

In most cases of advanced phthisis there is an irritable condition of the mucous membranes of the upper air-passages, the pharynx and larynx which, from the slightest cause, produces a cough of irritation. Local applications will aid us here. If the cough is caused by laryngeal irritation sipping ice-water will sometimes calm it. If the pharynx and larynx are in a chronic irritative catarrhal condition, we can first clean the surfaces by some alkaline solution like Dobell's, or warm borax and water, and then make such applications as cocaine, menthol, insufflations of morphia, iodoform and starch, inhalations of balsamic vapors, or a solution of nitrate of silver. Almost every phthisical patient has a paroxysm of coughing in the morning, on arising, if he is well enough to get up, or upon taking food. This is a cough of expectoration, and all we can do is to make the paroxysm as short, easy, and effectual as possible. A glass of some warm alkaline drink, Apollinaris, soda, Vichy, or Seltzer water with a little alcohol in it, brandy or rum; or a glass of warm milk and water with a little bicarbonate of soda and common salt in it, will often accomplish this.

VI. VOMITING. — This is an annoying symptom after taking food; and the cause, as given by Yeo, and which seems to be reasonable, is the increased secretion in the air-passages, already in a catarrhal state, caused by the stimulus of the circulation by the food and the rapid absorption of fluid from the surface of the stomach. Acting on this theory, he gives about half an hour before a meal, a glass of hot milk with some alkaline water (Ems, Seltzer, or the like), with a tablespoonful of brandy or whiskey, and so

[3] Die Moderne Behandlung der Lungenschwindsucht, von Dr. Felix Wolff, 1894.
[4] Traitement de la Phthisie Pulmonaire, Dr. G. Daremberg, 1893.
[5] Manual of Treatment, I. Burney Yeo, 1893.
[6] Die Behandlung der tuberkulosen Lungenschwindsucht, von Dr. August von Székely, 1894.
[7] Curability and Treatment of Pulmonary Phthisis, Jaccoud, 1885.
[8] Die Moderne Behandlung der Lungenschwindsucht.

favors free expectoration, just as previously mentioned in the morning paroxysm of coughing. The meal should consist of as little fluid as possible; and immediately after it a few grains of pepsin, with a few drops of hydrochloric acid, is given. I have followed this plan partially with more or less success. Peter, quoted by Yeo, ascribes vomiting to the irritation of the gastric portion of the vagus by the contact of food, and just before the meal he gives a rapidly absorbable sedative such as a few drops of laudanum in a teaspoonful of water, and immediately afterwards three drops of hydrochloric acid in water. If the vomiting seems to be caused by laryngeal irritation, local applications of astringents and anodynes can be used. If digestive disturbances seem to be the cause of it, antifermentatives such as carbolic acid, creosote, napthol, charcoal, iced lime-water, Vichy, soda-water and the like, may prevent it. When it is an oft-recurring symptom, perfect rest in bed and frequent feeding with a small amount of easily digestible nourishment, such as liquid peptonoids or peptonized milk, will aid greatly.

VII. Pains. — The phthisical patient in this stage complains of many and various pains and aches — pleuritic, painful affections of the intercostal nerves; pains in the back, joints, abdomen, muscles, etc. The variety of local applications is great, and one after another has often to be tried: Tincture of iodine; dry heat by means of dry cloths and the hot-water bag; belladonna, in liniment or plaster; chloroform; and, what I have found perhaps as efficacious as anything, equal parts of guiacol and glycerine painted over the painful area. If the pain is pleuritic and aggravated by respiration, and situated at the base of the chest, strapping with adhesive plaster, diagonally applied, as first suggested by Roberts, restrains the respiratory movement, and consequently stops the pain. If the pleuritic pain is at the upper part of the chest, one must have recourse to some counter-irritation.

VIII. Diarrhea. — This is either septic, or due to gastric or intestinal irritation, or perhaps most frequently in this stage, is the result of tubercular ulceration. If septic, salicylic acid or napthol may be used. When the diarrhea is not dependent upon intestinal ulceration, milk and lime-water, and tannate of bismuth are serviceable. If tubercular ulceration exists we can only hope to mitigate it, and opium with bismuth and some astringent have served me the best. Yeo and Székely recommend highly extract of Coto bark; a solution of nitrate of silver can also be used per rectum. The patient must be kept quiet in bed and given some partially predigested food like liquid peptonoids or peptonized milk.

IX. Hemorrhage. — Hemoptysis occurs in this stage as in the earlier ones, and, in the main, requires the same treatment — perfect rest in bed, an ice-bag over the heart region, and opium in the form of morphia, or codeia, with the addition of ergot subcutaneously if indicated. I believe that in the hemoptysis of this stage more or less alcohol is of benefit, contrary to the common usage in the treatment of this symptom. Cold liquid food is always recommended, and ice. Daremberg mentions "a very useful application" which is new to me, ice to the testicles or vulva; he applies it twice a day, and keeps it in contact with the skin about five minutes. He mentions the case of a consumptive who always carried a box of ice with him when he travelled; he had so much confidence in this practice. In the profuse, sudden, and alarming attacks of hemoptysis in advanced cavity cases, Yeo recommends frozen compresses as "one of our best resources."

X. Insomnia. — Sleeplessness is a frequent and trying symptom, not only as a result of the cough, but from the unstable, nervous condition. Some simple nourishment at bedtime, or a glass of wine or whiskey and water may produce the desired result; if not, I use some one of the non-depressing hypnotics — trional, chloralamid or sulfonal. The two former I have found the most satisfactory, in doses of ten to fifteen grains.

XI. Edema. — Edema of the lower extremities often ushers in the final event, as if the poor sufferer's cup of woe was not full. I know of nothing better for this painful symptom than a comfortable position in bed, gentle friction with alcohol and water, a light bandage, or wrapping the limb in some soft material like cotton or woollen.

XII. The mouth, tongue, and lips need attention at this stage. For the apthous condition of the mouth and tongue frequent cleansing with some alkaline wash, such as Dobell's solution or a boric-acid lotion is comfortiug; tincture of myrrh or menthol in almond oil can also be used. For the dry, parched lips, camphor-water and glycerine, benzoated oxide of zinc ointment, simple glycerine or cold cream.

XIII. This stage is accompanied with more or less anemia, and calls for iron when it can be borne. I have used quite extensively a preparation known as pepto-mangan, first called to my attention last winter by Dr. von Ruck, of Asheville. It is easily assimilated, causes no disturbance of the digestion, and can be continued for a long time.

XIV. The heart sympathizes with the general condition, and cardiac debility and irritability is a constant concomitant of this stage. The pulse is feeble, quick, easily compressed. For this condition I have found strychnia invaluable, and during my service the majority of the patients are taking it. It is not only a most efficient heart tonic, but it influences favorably many of the other symptoms. It is an admirable tonic in anorexia, relieves constipation, is a good respiratory stimulant in dyspnea, will often relieve vomiting, moderates the cough, reduces nervous irritability, and relieves many of the various pains of this stage of the disease. Indeed one is inclined to share the enthusiasm of Mays,[1] who places this drug third in importance in the prominent measures which he employs in the treatment of this disease, putting only physical rest and nutritious food before it.

Such in brief seem to be the main features in the treatment of advanced cases of phthisis. It is necessarily a symptomatic one, and I have only attempted to deal with the more common and prominent symptoms. Their variety indeed is legion, taxing to the utmost the skill and patience of the physician; but he has his reward in the satisfaction of knowing that he has at least smoothed the downward way of the weary traveller, as well as gained for himself added skill and experience in professional work. It is a losing fight at the best, and both the patient and physician know it; but the gratitude of the one, and the satisfaction of the other in duty well and patiently performed, mitigates the bitterness of defeat.

"The physician who treats phthisis," says Dett-

[1] The Strychnine Treatment of Pulmonary Consumption, by Thomas J. Mays, 1894. Reprint.

weiler, "needs the greatest patience and self-sacrifice, and genuine sympathy for the sufferer, and must, therefore, as Nothnagel beautifully expresses it, 'Auch ein guter mensch sein, soll er ein guter Lungenarzt sein.'"

## PUERPERAL SEPTICEMIA, WITH CASE.

BY JOHN Z. CURRIE, M.D., S.M., PH.D., CAMBRIDGE, MASS.

FOR various reasons puerperal septicemia is one of the most important diseases with which the medical practitioner has to contend. Notwithstanding the fact that our increased knowledge respecting its cause and nature and the consequent improvement in the means resorted to for its prevention and cure, have reduced the frequency of its occurrence and somewhat lessened the rate of mortality from this source, the fact remains that this disease is liable to occur in the practice of any obstetrician, frequently when least expected, and is even under the most favorable circumstances an affection of an extremely grave character. The rate of mortality from this disease is still extremely high; when death occurs it is under circumstances which are peculiarly sad and likely to excite a great deal of comment; moreover, some one who has been connected with the case, usually either the doctor, or nurse, or both, is almost certain to be censured. There are other reasons also why puerperal septicemia is one of the most undesirable diseases which can occur in any practice: recovery is usually slow and frequently imperfect, treatment requires a great deal of personal attention on the part of the medical attendant and when the nature of the disease becomes known it does not in any sense contribute either toward the excellency of the physician's reputation or to the increase of his professional business.

Considerable discussion has arisen at different times in reference to the use of the term puerperal septicemia, but if it be understood that puerperal septicemia differs from septicemia occurring under ordinary circumstances, only in the peculiar conditions under which it occurs, no uncertainty should exist as to the precise character of the disease referred to. It is simply a case of wound infection, and various terms are applied to the resulting conditions, according to the parts or organs chiefly affected. As has been pointed out by Dr. H. C. Ernst, for its production there is required the same combination of circumstances as for the production of septicemia in any other case, namely, (*a*) a specific virus, (*b*) a means of entrance for the virus into the system, and (*c*) a constitutional condition which under existing circumstances favors the development of the disease. In this case the specific virus is a pathogenic bacterium, the result of a morbid process which has either taken place within the genital tract or has been communicated from without by something which has come in contact with the parts. The wounded genital tract furnishes abundant means of entrance for the bacteria either at the original placental site, where a rent or abrasion has occurred, or even where the mucous membrane has been denuded of its epithelium. The reduced vitality of the parturient woman, the result of gestation increased possibly by a protracted labor or an excessive hemorrhage, together with the difficulty which exists of keeping the wounded parts in a septic condition, renders the woman particularly susceptible to infection.

I have selected the following case, which occurred in my own practice quite recently, not for the purpose of giving a detailed statement of its progress from day to day, but because it illustrates in a marked degree certain important peculiarities of the affection under consideration and because it affords an opportunity for a practical illustration of such treatment, as, in my opinion, is most likely to promote a cure.

Mrs. ——, a healthy, robust woman, aged twenty-one years, was delivered of her first child April 19, 1894. The labor, although somewhat tardy during the second stage, was quite natural and completed without interference of any kind. The external parts were small and somewhat rigid and in order to prevent a rent posteriorly a slight cut was made on each side of the vaginal outlet during the expulsion of the head. Notwithstanding this a small rent occurred posteriorly during the passage of the shoulders. The placenta and membranes were expelled intact with comparatively no assistance and but little hemorrhage followed. After the vaginal canal was well washed out and the rent properly cleansed, it was repaired and covered as well as possible with an antiseptic dressing. The rent was quite superficial but two stitches being required to retain the parts in apposition. For the sutures kangaroo tendon of moderately large size and which had been purchased ready for use, was used.

The progress of the case for the first three days was uneventful. The secretion of milk was established by the third day. There was no increase of temperature at any time up to this period and no discomfort of any kind was experienced. On the morning of the fourth day the patient's appearance had changed sufficiently to attract attention and upon inquiry it was learned that she had a slight chill during the early morning. The chill was very slight there being no rigor and no external appearance of its occurrence. It consisted simply of slight, creepy, chilly sensations, referred especially to the back and lower extremities. When I saw her about three or four hours afterward, the face was flushed, skin dry and hot, tongue dry and somewhat furred, temperature 105°, pulse 126. There was constant complaint of headache, great thirst and "bad taste in the mouth." Later the tongue became thickly furred, there was profuse and almost constant perspiration. Jaundice was apparent on the second day of the attack, and on the third day diarrhea occurred. The stools were liquid, of light color, very offensive, and soon became involuntary. Food was taken in fair quantities throughout the attack, was well retained and caused no inconvenience. The secretion of milk was not suppressed until near the end of the attack. After the occurrence of the diarrhea the pulse fell to 108 and the temperature to 103°. The highest temperature attained at any time was 105.3° on the morning of the second day. This condition continued for about seven days when improvement in every respect began. The temperature fell to 101° and pulse to 98. The jaundice gradually disappeared, control over the action of the bowels was regained, perspiration became less profuse and the desire for food more marked. Internal examination within four or five hours after the occurrence of the chill revealed an unhealthy condition of the edges of the posterior rent. The tendon in the most superficial stitch was apparently unchanged and was surrounded by a small but appreciable amount

of pus. As far as could be ascertained at this time, in approximating the edges the tendon had been drawn through the skin on one side. Several small lacerations were found within the vagina and the external os was considerably lacerated. Each portion of broken surface was covered with a grayish pseudo-diphtheritic membrane. The uterus was large, uncontracted, loose and flabby and the outline difficult to trace. The external os resembled a loose opening, unhealthy in appearance and studded thickly with pseudo-diphtheritic patches. The uterine cavity contained nothing but the ordinary amount of discharge and a small amount of *débris*. No shreds of membrane, clot or anything else likely to cause infection were found.

The treatment resorted to in this case was as follows. The uterus and vagina were well irrigated with hot water. The uterus was then emptied of its contents, a sharp curette being used for the purpose. Another warm-water injection was used followed by one of bichloride of mercury, 1–2,000. Every portion of broken surface about the cervix uteri and within the vagina was cauterized with stick nitrate of silver, and subsequently dressed with a powder composed of equal parts of iodoform and boracic acid. The unhealed portion of the external wound was re-opened, the remaining tendon removed and after being properly cleansed and cauterized, the wound was dressed with the powder just referred to. Every rent or abrasion was treated in the same manner. For several days the uterine cavity was washed out with warm water followed by a mild antiseptic solution, once daily, the vaginal cavity twice daily, and every portion of broken surface was either cauterized or well covered with the powder once daily as appearances indicated. As improvement took place the wash was used less frequently; and as the sores assumed a more healthy condition, powdered oleate of zinc was substituted for the powder before used. At the end of the second week after the chill, and after all applications excepting the vaginal douche had been discontinued, another chill occurred. This was more pronounced than the first, but was not an actual rigor. The general condition of the patient after the second chill was much the same as after the first and all the symptoms which resulted were about the same as in the first instance, excepting that the jaundice and diarrhea were less marked. A vaginal examination revealed the presence of a large sore of the same appearance of those before described, in the fold between the cervix uteri and the posterior vaginal wall. The same treatment was resorted to as in the first instance and after about five days, improvement again began. Recovery after this was uninterrupted but not rapid. Constitutional treatment was supporting and symptomatic. Quinine was given in one large dose at the outset, and afterward in four-grain doses every five hours. Occasionally phenacetine was given to relieve restlessness or headache, or if the temperature for several hours exceeded 104° and was not reduced by alcohol baths. The exhibition of phenacetine was never trusted to the nurse. Milk, or some form of liquid nourishment, was given every two hours during the day and at night, in such manner as would least disturb the patient. In about five weeks after the birth of her child, the patient apparently needed no further attention, and has remained quite well up to the present time.

The treatment just described gives a fair general idea as to what course, in my opinion, should be pursued in every case of puerperal septicemia; and just in proportion as this treatment is resorted to at an early date and carried out effectually, will be the number of recoveries.

An examination of the whole genital tract should be made at once; and even although a probable source of infection may be discovered, no part of the genital tract should be omitted in consequence of that. After thoroughly washing out the vagina, it is better to begin by treating all external broken surfaces, if there be any. Then every portion of the vagina and the cervical canal, as far as possible, should be exposed, and abrasions and lacerations sought for. Each of these, after being thoroughly cleansed, should be cauterized. This not only insures destruction of all septic material at that point but also seals the broken surface temporarily and promotes repair. Garrigues recommends that equal parts of chloride of zinc and water be used for this purpose and that it be kept in contact with the part for at least one minute. This, however, is very painful, and difficult to apply at all extensively without an anesthetic. I have been accustomed to use stick nitrate of silver for this purpose and always with apparent good effect; it acts very promptly, destroys the virus sufficiently, does not injure the tissue deeply, and seals the opening effectually for the time. When this has been done the uterine cavity should be washed out with warm water and then thoroughly emptied of its contents. For this purpose a large, moderately sharp curette is most desirable and if used with care no ill-effect should result from its use. Some operators prefer a dull curette, while others are satisfied with swabbing out the uterus with antiseptic gauze or other soft material, especially in mild cases. No doubt one operator succeeds better with one instrument while another does the work more effectually with another. The means by which the uterus is emptied is not of so much importance as that it should be done thoroughly and without injury to the organ.

In November, 1894, Alberti reported the case of a woman who was curetted for retained placenta and in attempting to remove the material which had been scraped away, a small loop of intestine was drawn down. Notwithstanding all the effort which was made she subsequently died in consequence of the uterus having been punctured by the curette. The curette should be used carefully to avoid injuring the weakened, flabby walls, but at the same time every portion of the internal surface of the uterus should be gone over and all the contents including the diseased decidua should be removed. A curettement under existing circumstances is much more difficult than under ordinary circumstances, owing to the enlarged cavity and non-resisting walls. In a case of moderate puerperal sepsis, which occurred in my own practice not long since, after the curettement the patient's condition was still very unsatisfactory, and the operation was repeated on the following day. It was then seen, as had been suspected, that the first attempt had not removed all the contents. In all probability, in many instances of this kind in which no improvement follows the use of the curette, the explanation is that the uterine cavity has not been thoroughly emptied of its contents. The point sought to be accentuated is that the uterus should be completely relieved of any accumulation at as early a moment as possible and without

injury being inflicted upon the organ. The cavity should then be washed out with warm water which has been boiled, followed by a moderately strong antiseptic solution. If the antiseptic selected be one of an actively poisonous nature, it should be followed by another warm-water douche to prevent any danger from absorption. The manner of giving the intra-uterine douche is of considerable importance, as serious accidents have resulted from its use. Rather than to trust to any of the complicated instruments devised for this purpose, it is better to see that there is ample space for the return of the injected liquid and that it actually does all return. If even a small quantity remain within the uterus, it frequently occasions a severe uterine colic. While this may not be a very serious matter, the pain is sometimes very great and produces considerable constitutional disturbance. It is well to remember that at this time the uterine cavity is simply a loose sac, and that there is nothing to favor the outflow of the liquid excepting gravitation. After the liquid has ceased to flow from the uterus, the cervical canal should be gently opened and depressed until no more liquid escapes. If there be no tenderness over the region of the uterus, external pressure and turning the patient on the side favor the return of the liquid. It is better to introduce the liquid at the fundus, as this favors its return and insures its coming in contact with the whole cavity. It is better also that the liquid should enter the uterus by force of gravitation than that any additional force should be used. In this way the force is not great, the flow is steady, the return of the liquid is likely to be established at once and the danger of its being forced in any harmful direction is reduced as largely as possible. It is also well to use a soft instrument for entering the uterus. I have known a uterus so attenuated that a Simpson's sound punctured the wall simply by its own weight. I have learned of another case also, in which the uterus, soon after death, when laid over the end of an upright Simpson's sound, apparently offered no resistance whatever to the entrance of the instrument through its walls. For this purpose I frequently use a soft-rubber male catheter. With a sound in the eye it is easily carried to the fundus and there is comparatively no danger of inflicting injury.

The most desirable intra-uterine injections are a two-per-cent. solution of carbolic acid or creolin, or a solution of bichloride of mercury, varying in strength from 1 to 2,000 to 1 to 4,000. In my opinion, especially in serious cases, for the first injection at least, a moderately strong solution of bichloride of mercury is by far the most reliable. For subsequent use a weaker solution of the same character or a carbolic-acid solution should be substituted. Creolin is somewhat objectionable on account of its color. When using creolin in this way it is impossible to judge accurately of the character of the discharge which is present. The use of eucaline in the proportion of 1 to 100 of water has recently been recommended for this purpose. It is one of the coal-tar products combined with eucalyptus and it is alleged that while it possesses all the virtues of creolin as an antiseptic, its use is not objectionable on account of its color. For simply cleansing the vagina, in my opinion, there is nothing so agreeable to the patient, and at the same time so effectual as one or one-and-a-half per cent. solution of lysol. After the use of the intra-uterine douche an iodoform suppository should be placed within the uterus and carried up to the fundus. It is occasionally difficult to accomplish this with ordinary dressing forceps, and there is some liability of injuring the uterus by their use. It is much more easily accomplished with a long, curved instrument made for the purpose; some authorities recommend that the uterus be measured with the forceps before inserting the suppository in order to insure its reaching the fundus. Garrigues recommends that a suppository containing about 40 grains of iodoform be used once daily, after the intra-uterine injection, until the sloughs come off and the fever abates. After this it is of the utmost importance to secure and maintain perfectly free drainage. In general, especially at the beginning of the disease, the entrance to the uterus is so relaxed that no effort in this direction is required. When necessary, drainage should be secured by packing lightly with antiseptic gauze. Some recommend that this be done in all cases; but if the passage be free and intra-uterine injections are used as suggested once daily, there is no apparent necessity for it and it is just possible that in some cases the gauze might act as an obstruction rather than otherwise.

After-treatment may depend very largely upon existing circumstances; however, an examination should be made at least once daily and if there be any foul discharge from the uterus, the intra-uterine injection should be repeated and the iodoform suppository placed in the uterus as before. Each sore should be observed at least once daily and either cauterized or dressed with an antiseptic dressing, as appearances may indicate. As long as there is any tendency to the formation of membrane, cauterization has a better effect than anything else. Patients seldom complain of any pain from its use. As an antiseptic dressing the powder before referred to composed of iodoform and boracic acid, answers the purpose very well. It has the advantage of being easily applied by an insufflator and of adhering to the parts for some time. When the sores do not heal readily, after the sloughs come away, I have found the daily application of finely powdered oleate of zinc especially useful. Daily inspection should be continued until all broken surfaces are either healed or are in a healthy condition although improvement may have taken place in other respects. If a single point be overlooked fresh infection may occur.

As to constitutional treatment no general rules can be laid down. Quinine is undoubtedly useful and should be given in four or five grain doses every five hours. It is claimed by some authorities that quinine in addition to its tonic properties, possesses the power of preventing the emigration of the leucocytes from the veins and capillaries, and is thus especially useful in these cases. As in all similar cases it is of importance to nourish the patient as well as possible, but as to how this can be done most effectually can be determined only by the circumstances in each case. Some authorities recommend the free use of stimulants in in all cases from the beginning of the attack, but the legitimate use of stimulants in these as in all other cases appears to be, to withhold them until a stimulant is actually called for and to depend upon the various forms of food for nourishing the patient.

The first interesting feature in the history of the case referred to in this paper, is, its unexpected occurrence. In my judgment there was no legitimate reason to anticipate an attack of this kind under ex-

isting circumstances. The labor was normal, not of unusual duration or severity, was conducted on strictly aseptic principles, and completed without interference of any kind. Internal examinations were made very infrequently, external manipulation being relied upon very largely to determine the progress of the case. The hands were thoroughly prepared before any examination was made, and never entered the genital tract without being held in an antiseptic solution prepared for that purpose; moreover, the patient was a strong, robust young woman and apparently was not much exhausted by the labor. Within twelve hours after the completion of the labor, I attended another case of parturition, in which the circumstances were almost identical, excepting that the labor was shorter. The child had evidently been dead for some time, as it, as well as the retained discharges, had undergone decomposition to such an extent as to be extremely offensive. The manner of conducting the labor was the same in each case, and no greater effort to prevent infection was made in the latter than in the preceding case. This woman made an excellent recovery. In the first case, without any legitimate reason to anticipate such a result, a septicemia of so malignant a nature as to threaten destruction to life in a very short time was suddenly developed, whereas, in the second case in which some danger of septic infection might reasonably have been expected, recovery was rapid and without any interruption.

Another interesting feature in connection with this case is, that notwithstanding the violence of the attack, and the rapidity with which such extremely grave symptoms were developed, there was no well-marked chill at the outset, and no increase of temperature at any time previous to the slight chill on the morning of the fourth day. The second chill was decidedly more pronounced than the first, and yet the symptoms following it were not in all respects so alarming as at the beginning of the attack. This, I think, is a forcible illustration of how little reliance can be placed upon the occurrence or character of a chill as indicating the beginning or gravity of an attack of this kind, and of how easily one might be misled and valuable time lost. Another point of interest in this case is the fact that, notwithstanding the prolonged constitutional disturbance and the continuance of a moderately high temperature for some time, the secretion of milk was not wholly suppressed throughout the entire attack. The amount of milk secreted was such as to give hope that as convalescence progressed this function might be wholly restored. This, however, was not the case.

Still another feature to which I wish to refer, is the recurrence of the attack. This undoubtedly was due to the sore in the fold between the cervix and posterior vaginal wall being neglected before it was healed. This point is, under existing circumstances, the most difficult of inspection of any part of the vagina. It is also the most difficult to treat and keep in a cleanly condition, and so it is here that re-infection is most likely to occur. Unfortunately a knowledge of this fact does not always prevent its occurrence as in the present instance, but a result such as this should emphasize the necessity of keeping every portion of broken surface under observation until repair has taken place to such an extent as to prevent the possibility of infection taking place.

Another matter worthy of notice in this case is the particularly loose and flabby condition of the uterus. While this condition, to a greater or less extent, is common to all cases of puerperal septicemia, in this case it was particularly marked, the external os and cervical canal being quite unrecognizable as such and the entire shape of the uterus being lost. The point to which I wish to call attention is that, in my opinion, this condition obtains to a greater or less degree in proportion to the gravity of the attack, and that the earliest indication of improvement is seen in the return of tone to the uterine muscles. The first indication of the uterine muscles regaining tone is seen in an attempt at contraction, which can first be recognized in the rounded outline of the external os. This occasionally precedes but is usually coincident with the first fall in the temperature. I am not aware that this statement has been made by an authority upon this subject; but, from my own experience, I am so convinced of its truthfulness that I have come to estimate the progress of the case, very largely from the appearance of the os and cervix as disclosed by the speculum.

## ABDOMINAL HYSTERECTOMY IN THE TREATMENT OF SEPTIC PELVIC DISEASE AND FOR CANCER OF THE OS UTERI.

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In the treatment of pus-tubes and other pelvic abscesses, especially when due to an extension from the uterus of septic infection, removal of the tubes and ovaries has failed to cure the patient permanently in quite a large proportion of cases. After the operation the infected uterus has become an entirely useless organ, deprived of the support of the broad ligaments, and sometimes the seat of a permanent septic invasion. In this condition of disease it is without doubt the starting-point of many reflex disturbances.

Deprived practically of all support the uterus becomes displaced, congested, and the source of a very intractable leucorrhea. For these reasons hysterectomy, which adds little, if anything, to the danger attendant upon the removal of tubes and ovaries, is now being quite generally accepted as a substitute for oöphorectomy.

Therefore in the treatment of most of these cases the question of operative procedure is reduced to a choice between vaginal and abdominal hysterectomy. It is to the question of our choice between these two operations, not only in septic pelvic disease, but also in cancer at the mouth of the uterus, that this article refers. My conclusions will be deduced entirely from personal experience with the two operations.

In septic diseases of the uterine adnexa, Péan and his followers do vaginal hysterectomy. Following the lead of the French surgeons, several distinguished American gynecologists are advocating the vaginal operation as preferable to the removal of the infected uterus and its diseased appendages by the abdominal route. The trend of professional favor at this moment in the treatment of these cases seem to be toward vaginal hysterectomy almost to the exclusion of the abdominal operation.

Until the advent of the Trendelenburg table, in cases of cancer of the uterine neck, vaginal hysterectomy was the only operation practically possible. But now in these two widely different diseases, pus-tubes

and cancer of the os, we have the choice between vaginal and abdominal hysterectomy. From my own experience I believe that in all cases of pelvic disease requiring the removal of the uterus and in a majority of cases of cancer of the os, complete abdominal hysterectomy is the safer, simpler and more successful operation.

In cases of pelvic suppuration, extensive adhesions of omentum and intestines to the diseased structures is an almost constant complication and oftentimes a very serious one. These adhesions can certainly be dealt with much more easily through the abdominal incision, than through the vagina. With a patient nearly in the complete Trendelenburg posture we can most readily and carefully separate pus-sacs from surrounding tissues. Whenever the abscess has opened into the rectum or bladder the fistulous opening in either of these viscera is well within our reach for repair. I have had occasion three times to close such openings in the intestine, in all of which the closure was permanent.

When doing hysterectomy through the vagina such repairs would be impossible. In the abdominal operation, it goes without saying that we can ligate more easily the ovarian arteries, and the uterine arteries fully as safely and readily as is possible by the vaginal route.

In some of these cases of pelvic disease, vaginal hysterectomy would be impossible, and I know no way in which the greatest diagnostic skill can unerringly separate these non-operable cases from the others.

In general, in those patients where vaginal hysterectomy is possible, it is a more difficult operation than abdominal. The field of operation is left in a much more satisfactory condition after abdominal than vaginal hysterectomy.

After the removal of the uterus through the abdomen, we entirely close the abdominal cavity by a running stitch that unites the peritoneal flaps that we have made. The bottom of the pelvis can be readily cleaned so thoroughly, that, except in very rare instances, there will be no need of drainage through the abdominal wall. The latter being completely closed through its entire length, the danger of subsequent hernia becomes extremely small.

So that all the drainage we have in this case is the gauze entirely outside the abdominal cavity and brought out through the vagina.

While, after vaginal hysterectomy, the abdominal cavity cannot be entirely closed with safety, and the drain extending from within the pelvic abdomen out through the vulva is a necessity, and at the same time a danger as a possible carrier of infection, so in this matter of drainage, abdominal hysterectomy has manifest advantages.

In some cases of vaginal hysterectomy, complete ligation of the broad ligaments and the contained vessels cannot be done, then clamps must be used. The objections to them, and the dangers attending their use, have been too well established to require any enumeration.

In this comparison of the two operations in the treatment of pelvic disease, this can be said in favor of vaginal hysterectomy, that the immediate danger from shock is greater in the abdominal operation. I doubt, however, if a patient will ever die from shock, when the operation is being done through the abdomen for pelvic disease, except possibly in some of those cases where vaginal hysterectomy would be impossible. Extrusion of the bladder, which is a more serious inconvenience to the patient than ventral hernia, never occurs after abdominal hysterectomy, but follows vaginal hysterectomy in a larger proportion of cases than hernia does after an abdominal section through the median line. Convalescence after abdominal hysterectomy, so far as my own experience goes, has been more uneventful and rapid, than after the vaginal operation.

What I have said in favor of abdominal hysterectomy in the treatment of pelvic abscesses, will apply, to a great extent, to the operation that we should choose — whether vaginal or abdominal — for removal of the uterus for cancer of the neck.

In all cases where the uterus is high up in the vagina, and the latter narrow, or where the malignant infection has extended under the broad ligaments, or the uterine appendages are involved, the advantages of abdominal hysterectomy are at once apparent.

It is an easier operation to do, and the infected structures can be more easily and thoroughly removed. I would reserve vaginal hysterectomy entirely for cases of cancer of the os, where there was probably no extension of the disease beyond the uterine tissues, and where the uterus was very movable and the vagina capacious.

## Reports of Societies.

### MASSACHUSETTS MEDICAL SOCIETY.

ONE HUNDRED AND FOURTEENTH ANNUAL MEETING.

THE sessions of the Sections in Medicine and Surgery were held at Mechanics Building on Tuesday, June 11th.

The Shattuck Lecture was given on Tuesday afternoon by DR. ROBERT T. EDES, of Jamaica Plain, on

THE NEW ENGLAND INVALID.

The Exhibits this year were of more than usual interest, by far the most striking and unusual, however, was an exhibition of pathological and anatomical water-colors and sketches by William J. Kaula. The drawings, many of which were to illustrate Prof. J. C. Warren's Surgical Pathology, and others of larger size to illustrate lectures on pathology, are remarkably accurate both in line and color. Such work as this marks a distinct advance in illustration of lectures and text-books over the old careless line-work.

The exhibits of surgical supplies, sterilized ligatures, sutures, dressings, etc., showed the remarkable perfection to which the preparation of sterilized materials has been carried of late, and the exhibits of instruments, sterilizers, etc., was well worthy of mention.

The One Hundred and Fourteenth Annual Meeting was held at Mechanics Building, Boston, June 12, 1895.

ANTITOXIN IN DIPHTHERIA.

The following papers on this subject were read:

"The Etiology of Diphtheria and the Use of Antitoxin," by DR. H. C. ERNST, of Boston.

"The Pathology of Diphtheria," by DR. W. T. COUNCILMAN, of Boston.

"The Prophylactic Use of Antitoxin," by DR. F. G. MORRILL, of Boston.

"The Preparation of Diphtheria Antitoxin," by DR. J. L. GOODALE, of Cambridge.

"The Clinical Use of Antitoxin," by DR. W. H. PARK, of New York City.

Discussion by DRS. C. F. WITHINGTON, of Roxbury; G. G. SEARS, of Boston.

THE ANNUAL DISCOURSE[1]

was delivered at twelve o'clock by DR. ALFRED WORCESTER, of Waltham.

THE ANNUAL DINNER

was served at one o'clock, at the close of which the Anniversary Chairman, DR. H. L. BURRELL, introduced the first speaker, His Excellency Hon. F. T. Greenhalge, in the following words:

FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY: — Why do we gather on these annual festivals? That we may freely exchange counsel and advice, and that we may have relaxation from our daily cares. Our profession is one of the noblest which can engage man's energies if its functions are rightly conceived and its obligations fully realized.

A society that has among its past members men who have exercised a world-wide influence on the well-being of mankind, men whose names will endure for time, such as Jackson, Bowditch, Bigelow, Holmes, Waterhouse and Warren, must have ideals of development.

As medical men we are often too engrossed in our daily work to fully realize the breadth of our duty to mankind. In the community in which we live there is more respect paid to the rights and comfort of the individual than in any part of the world. We are justly proud of this standard. As medical men our first duty is the care of the individual, but we should not be warned into forgetting our broader, although less obvious, duty of adding by research to the knowledge of disease that we may improve all mankind.

The material, mental, and often the moral well-being of the world with all the possibilities for a larger usefulness and a richer, more fruitful civilization which such well-being implies, are directly influenced by our profession, especially in our capacity as medical societies.

A society like ours should establish and maintain good fellowship and honorable conduct among its Fellows. It should stimulate by emulation its members to their best work. It should foster the healing art, advance medical science and diffuse knowledge influencing the public health. Membership in this Society should be an assurance that the man is well educated and a gentleman.

The Society should never degenerate into trades-unionism. It must always stand ready, as it has so often in the past, to judiciously co-operate with the State in the greatest of all branches of our profession, preventive medicine.

Our obligations to the Commonwealth associate us closely with its government; and I beg to present to you one in whom we all delight in honoring on this occasion, an executive who conscientiously stands for the right, His Excellency, Frederic T. Greenhalge.

[1] See page 585, No. 24, of the Journal.

GOVERNOR GREENHALGE spoke as follows:

I understand from the remarks of the Anniversary Chairman that the standards are to be maintained and increased, and I regret that in the very fine innovations that have been made to-day it seems a sort of valedictory performance in that system of Anniversary Chairmen which has done so much to gladden your banquets in the past. It is like bidding a personal and an official farewell to the old *régime*, which has done so much to make matters pleasant and comfortable, and yet I myself have had the pain of parting with the Anniversary Chairmen on an official occasion. He was the surgeon-general, whom I delight to honor, and whom the Commmonwealth of Massachusetts delights to honor. And I want to pay my humble, yet fervent tribute to the effective and splendid work done by that chairman in the task of bringing the militia to its present high state of efficiency, in regard to the ambulance system and the medical department generally. So, my friends, if the system goes out, it certainly has the advantage of going out in a blaze of glory.

I am glad, my friends, to be here. This is an ancient and historic society. I remember that in the old days members of your profession were not thought so highly of as they are to-day, and that seems to be one of the marks of progress which the present century has manifested. I can remember when you were called — at least in the books — medical men, and by the somewhat invidious title of "leeches"; and sometimes people who have to pay your bills think that this term has not become altogether obsolete. But you must always remember that a jibe at a learned profession is the only consolation of the ignorant.

It is important that the standards of the profession should be maintained. It is important that you should know who are members of your organization; that you should be able to say, when a man's name is mentioned in connection with that of the Massachusetts Medical Society, that he is a man to be trusted for honorable dealing, whose aim means well for the good of the whole Commonwealth. It is not so much a matter of money-making that may be important; not so much a matter of selfish emolument. This great Society means that whatever secret science has to teach, wherever progress can be made, that progress will be made, and those secrets will be learned by this representative body of men as soon as anywhere else on the civilized globe. Therefore, my friends, it is a source of congratulation that the legislation of Massachusetts has looked forward and not backward. It is well that a just discrimination should be made by the Commonwealth which will divide the untrustworthy from the trustworthy.

It is an inspiring and encouraging fact to come here and to find that, so far from your members having diminished, they have increased, and that probably 200 or 300 more come here to-day than have come on previous occasions. The questions that will be put to you are something like this: Has your work contributed to the good of the community? Have you contributed to longevity? I think the answer will be in the affirmative. Have you made life more worth living? Have you reduced to its minimum the rack and pain of suffering? Have you added to the comfort, the happiness, the enjoyment and the rational delight of mankind? Have you made death less fearful, and have you given every comfort and satisfaction which

the science within your reach was able to contribute?

These questions, I think, the statistics would answer in the affirmative as well. It does not make so much difference what school a man belongs to; but it makes all the difference in the world whether he is true to the newest and highest dictates of science. If these things are so with the members of this Society the Commonwealth may well bring its warmest greetings, and may well bid Godspeed to the members of the Massachusetts Medical Society, as I do in these brief words to you to-day.

The Chairman in introducing Dr. F. K. Paddock, said: In 1850 the office of Anniversary Chairman was created. Since that time it has been held by many good and distinguished men. To-day that office dies. The Anniversary Chairman, after forty-five years of life, is cut off in the prime of his manhood. His impulse on this, the last day of his life, is to occupy all of your time in demonstrating to you that he falls a martyr to the grasping ambition of the presidents of the Society, who have always envied his elevated station, temporary though it might be. The waning light gives way to the fixed light who is hereafter to preside at your dinners. The President of the Society will now speak to you.

DR. PADDOCK spoke as follows:

MR. CHAIRMAN AND FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY: — In pursuance of my official duty, during the last year, I have visited District Societies in the different sections of the State, and I recognize in this great throng to-day many familiar faces.

We are assembled to observe the one hundred and fourteenth anniversary of the organization of this Society; and on this occasion it gives me pleasure to assure you that prosperity and harmony prevail through the Commonwealth.

I am certain that the respect of the community at large for this organization is increasing from year to year and I feel confident that in the immediate future the great and general court will demand that every practitioner in the State shall be a part of this body, and thus restore the prestige which was denied it many years ago.

It is with pleasure and surprise that I have observed the rapid dissemination and inculcation of new ideas and methods through the State. A new departure in medical or surgical practice in Boston is utilized in a surprisingly short time by the profession all the way from Berkshire to Barnstable. The skill and resources of the rural practitioner are steadily improving, keeping pace with his city brother.

The conservatism which has characterized this Society in its recognition of "isms and pathies" has been wise and healthful in the past; but the conditions are different now, and a more liberal policy in the future may be of advantage.

I am sure you will all sustain me in the opinion that it is the aim of this Society to excel in every art and theory that prolongs life and gives health to mankind.

The waning light which has been so pathetically described by our eloquent Chairman, as illuminating his approaching death, will, I assure you, be like the light of the noonday sun as compared with the darkness which will obscure the proceedings at the next anniversary dinner of this Society; and you will hasten to restore life and health to the Anniversary Chairman.

The Chairman then introduced Prof. Charles Eliot Norton in the following words:

Bound as we are by the necessities of our work to the material things of the world, it is well that we should keep fresh our interest in those things which offer us a wholesome relaxation from our daily cares and which do much more if their full significance is completely grasped, which may illumine those tasks and all the aspects of the world by the light of a rich spiritual nature, by giving its right influence in our lives to the noblest of our faculties, the imagination. Emerson has said, "A man is a beggar who only lives to the useful, and however he may serve as a pin or rivet in the social machine, cannot be said to have arrived at self-possession."

Fellows of the Society, it gives me much pleasure to present to you Dr. Charles Eliot Norton, Professor of the History of Art in Harvard University.

PROFESSOR NORTON said:

MR. CHAIRMAN, MR. PRESIDENT, MEMBERS OF THE MASSACHUSETTS MEDICAL SOCIETY: — If a justification of the presence of a layman to take part in the celebration of your anniversary be required, it may surely be found in the fact that it is eminently becoming that some one from outside your ranks should express the gratitude of the community to the medical profession and offer to it the testimony of the general honor and respect.

No intelligent man can live to middle life without having frequent occasion to acknowledge his quite immeasurable obligations to individual members of your profession for services rendered to himself and to those dearer to him than himself.

The ideals of all the chief professions to which men devote themselves are noble and worthy of the devotion of high-minded men, but no other is loftier or more inspiring than that of the medical profession, for it is an ideal of immediate, unceasing, self-forgetful and self-sacrificing *service*. The pursuit of it tends to the development of character of the highest type. It is a mere commonplace that a good physician must be possessed of quick and exact observation, capacity of drawing rapid synthetic conclusions, sound judgment, firm decision, readiness to deal with sudden, unexpected emergencies, and that together with these, and not less essential, he must have a large understanding of human nature, tenderness of heart, and a spirit of intelligent and humane sympathy, not to be dulled by recurrent call for its exercise, nor refusing to be aroused because the individual appeal to it belongs to a general and common class.

While I name these qualifications I am describing no imaginary persons, but men whom I have known and honored, men whom you have known and honored; but why do I use the past tense? men whom you and I know and honor! The rolls of the profession in Massachusetts are full of exemplary names. I need but recall the Jacksons, the Wares, the Shattucks, the Warrens, the Bigelows, the Bowditches, the Wymans, the Cabots.

But much as we have owed the profession in the past it seems likely that we are to owe to it still more in the future. It was but the other day that Mr. Balfour, eminent alike in English politics and in English philosophy, was addressing an audience of medi-

cal men and said, "I cannot forget that great as is the debt that humanity in the past owes to those who have devoted themselves to the healing art, that it is increasing and, so far as we can venture to prophesy, seems likely to increase in a rapidly expanding ratio. The successful application of the scientific method in all the arts is one of the most remarkable characteristics of this and the last generation, and nowhere does that characteristic show itself more prominently than in the region of the great art of medicine. There science and practice are ever more and more joining hands and every day medicine is becoming less the work of the empiric, more and more of the scientific expert."

With this extension of knowledge, with the new methods of investigation opening illimitable vistas of discovery and indefinite but splendid prospects of advance, even with this great progress, a grave danger is associated.

The acquisition of the knowledge requisite for the practice of the profession whether upon its medical or its surgical side, becomes more and more arduous. The term of education is necessarily prolonged; the attainment of mastery requires more exclusive devotion to special pursuits; the profession divides itself, and many of the ablest practitioners are more and more strongly tempted to confine themselves to special departments of their art.

But the most thorough medical education, if it be an exclusively medical education, and the most complete attainment of special skill and knowledge in any one branch of the profession, whatever it may be, do not lead to the ideal of a good physician. Exclusively medical education is not enough. A good physician must know more than medical studies teach. It is not enough to know the signs and causes of disease and the remedies for it, he must know life in its largest sense, life, of which disease is but the perturbation. And the way to this is twofold: by experience and by culture; twofold and yet single, for it is culture which enables a man to put his experience to profit, to interpret it correctly, and to recoguize intelligently the enormous variety of human character through which the essential unity of human nature manifests itself.

No man should be deemed fully qualified for the practice of the healing art unless his soul has been enlarged, and his mind disciplined by the studies which are justly termed the "humanities." In the busy practice of his profession the physician may find little time for such studies. The pursuit of them must be early begun, and happy for him if the love of them be early established.

Above all should the young student who proposes to become a physician devote himself during the brief period before he enters upon his strictly professional studies to those studies which tend to the culture and development of the imagination. The imagination is the most powerful and, if left untrained, the most dangerous of the faculties. It is the most useful and the most powerful if properly trained, for then it informs and animates the moral nature; it quickens and enlarges sympathy; it guides judgment; it moderates desire; it provides innumerable resources of refreshment and recreation; it secures sanity of soul.

A great part of every physician's duty is the exercise of influence over the imagination of his patients. "A wise physician," says Pluto, "cures the body with the mind." Imagination is the futile source not only of imaginary but of real disease, and every physician knows by frequent experiences how large a part it plays in recovery from disease and in the maintenance of health. The country physician is constantly called upon to deal with the disordered imaginations of his patients, exposed to all the trials of life and wearing their hearts out in comparative solitude, while the city physician, here, for instance, in Boston, finds himself not less constantly confronted with the conditions of the imagination which reveal prehistoric modes of thought, and which exhibit in the wonder of faith cures and of Christian Science, close analogies to the mystic vision, the miracles and the *stigmata* of S. Francis.

I remember long ago hearing a story of a well-known printer in Philadelphia, Mr. Fry, who at one time was engaged in reprinting one of those encyclopedias of medicine in which different diseases are treated at length in independent volumes. He said he always opened with interest a new volume when it arrived from England in order to see what disease was to be prevalent in his office during the next two or three months.

But the culture of the imagination is requisite for the good physician not only that he may through it learn how best to deal with the troubles of his patients but that he may preserve his own health of body and mind. Every physician requires some intellectual interests beside those of his own profession, and there are no interests comparable to those which the imagination may supply. The means of culture of the imagination are easy, are not far to seek. One man may find them in his garden; another in his shelf of wisely chosen books, another, perhaps, even in his collection of postage stamps. Be sure only to take some means. It probably matters little what.

Best of all, perhaps, for true recreation is the study and the love of poetry. The guidance of the taste may safely be followed here. Happy if it lead to Shakespeare or to any of the greater masters of poetry!

I remember many years ago, that Sir John Simon, known to you all as the eminent surgeon to St. Thomas's Hospital, and still better as the man to whom England mainly owes her magnificent system of national preventive medicine, a man I hold as a high honor to speak of as an old friend, coming one day into my room and taking up from the table a volume of "Dante," turning to me, he said: "I used to know much of Dante. Let me see if I can recall something of him now." And then he repeated without an error one of Dante's sonnets in the original Italian, which he said he believed he had not looked at for twenty years. I have known few men who had a more thorough acquaintance with Shakespeare, with Milton, and with the other great masters of English literature than he.

And let me recall another illustration. When in the heat of war and under the pressure of multitudinous responsibilities of the heaviest weight, Governor Andrew, our great governor, was obliged to travel often between Boston and Washington, he told me that in order to refresh himself and to keep his mind smooth, open and tranquil he was accustomed to take with him a volume of poetry, often the "Golden Treasury," to occupy the hours of the journey in learning by heart some one of the pieces which it contained.

But, more than this, poetry may serve not only as the means of refreshing the wearied mind, it affords a never-failing source of comfort; and there is no man

who at times has more bitter disappointments and stands more in need of comfort than the physician.

The subject is leading me too far. I must stop! but I would end as I began with a word of gratitude which though spoken by my single voice, is the utterance of thousands upon thousands of your fellowmen.

The Chairman next introduced the Rev. James B. Doonan as follows:

FELLOWS OF THE SOCIETY: — As medical men, ministering to the ills that flesh is heir to, and appreciating as we do the important influence exerted by the mind on the diseased body, we know the great comfort which is brought to our patients by their spiritual advisors. Theology and medicine have always been closely allied; in fact, to the church we owe our first hospitals, and for centuries most of the practitioners of medicine were churchmen. Gradually a definition has been made between the man who ministers to our spiritual needs and him who cares for our temporal wants, until to-day we have hospitals which provide, not only for the care of the sick and unfortunate, but which are the great schools of our profession, out of which comes information which benefits and improves the whole human race. The work of the church and of medicine lie in parallel lines, frequently intersecting, never antagonistic, both striving for the good of man; and it gives me the greatest pleasure to present to you the Rev. James B. Doonan of Boston College, one who represents a most loyal ally in the care of poor suffering humanity and who is a representative of the conservative church.

REV. JAMES B. DOONAN responded as below:

GENTLEMEN OF THE MASSACHUSETTS MEDICAL SOCIETY.— An invitation to address an assembly such as, at this moment I face, when standing before the Massachusetts Medical Society, is an honor that might reasonably touch the self-esteem of any man. On the other hand, the gravity of the task that I have assumed by acceptance of your invitation is well calculated to temper any pride that may have been awakened. For what is personal in the summons you have made of my presence here this afternoon, I thank you with a cordial sincerity, which the simple language of my gratitude will not, I trust, obscure.

That which is personal, however, whether it be the grateful sense of the honor you have done me or the disturbing thought of my inadequacy to the task, is lost to view in the realization that it is rather as a representative of religion that you have called me before you to-day. The charge that you have committed to me is to speak in the name of religion, and to set forth the special relations which it holds to the great profession which constitutes the life-work of the members of your distinguished Society.

Whether one considers the lofty aims of that profession itself, the intellectual development demanded in those who embrace it, or, lastly, the high standard of moral worth exacted of those who enter upon the career of the physician, there is in any community no class of men whose opinions should command more respect or exercise more potent influence than in the great body of physicians.

With striking force, then, must avail your action in ordering that on this occasion, when custom calls for a declaration of the principles that underlie your work and direct its operations, utterance of no uncertain sound should be heard in profession of your belief in the existence of God and in evidence of the respect in which you hold religion, the summary of man's obligations to that God.

The only intelligent purpose ever assigned by human philosophy for the existence of the world of wonders encompassing us, is primarily the manifestation of the wisdom, the goodness and the power of a Creator, and secondarily the happiness in and through these visible things, to what is greater though invisible, of Man himself.

The reasoning intellect, which stands outside of even so familiar an object as the time-piece, that marks for us the hours of the passing day, the designing mind and the cunning skill of a maker; which can descry the architectural thought of a Richardson, as one gazes in admiration upon his master-work in Copley Square, cannot surely miss the existence and the activity of a First Great Cause lying beyond and outside of this world of ours, whose beauty, harmony and strength, progressive stages of study daily reveal to us.

The geologist, who finds books in stones; the astronomer, who of all students of Nature, most nearly grasps the concept of the Infinite, as he plunges into the immensity of space and calculates the gigantic tracks of celestial bodies; the botanist, who, in the tiny leaf of the wayside flower, comes upon the principle of life, a thing so mysterious that no man yet has fully made answer to the question "What is it?" All these, gentlemen of the medical profession, must yield to you in the near reading of the great Creator's wisdom and power. To your study is daily subjected the master-piece of God's fashioning — a very microcosm of marvel — the human body. Wonderful it is for harmony of design, perfection of function, teleological accuracy, and for a beauty which places it peerless among the objects that enkindle the æsthetic glow of our being. In this more wonderful than in all else, because it is a tabernacle in which dwells a spirit — a reality which sight cannot clothe with form or figure, a substance so subtile that scalpel will not disclose it, so unponderable that the most delicate balance will not declare its presence. Yet, withal, the source of all that is best in man, the principle of his intellectual power and his moral greatness.

It stands to reason then, that men of your profession, to whom study has opened the doors of the temple of wisdom, must be farthest removed from the folly of such denial. No nation has ever attained to greatness, no civilization has ever flourished without religion. Pagan Greece, with her superb ascendancy in letters and art, pagan Rome with the resistless power of imperial sway, were religious nations. Misdirected as to object of worship and perverted as to application of its teaching, paganism held many conservative truths. Men believed in a God Supreme, in the immortality of the soul, in a future state of rewards and punishments.

From some quarters we hear the cry, that Christianity has achieved its work in building up our civilization; and those who utter this cry are even willing to admit the debt of gratitude owed to religion for the beneficent results accomplished. But the claim is further made that we can now move forward on the path of progress without Christianity, Science affording all sufficient light and motive for the advance.

Were Christianity to disappear from the world, doubtless many of its achievements would for a time endure, nor would our civilization in a day lose the impress that ages of Christian influence have left upon it. Daylight lingers, even when the sun has sunk below the horizon; not all verdure dies out in the tree the moment the woodman's axe has prostrated its majestic form. But let the time come when the great truths of Christianity cease to be believed, and desolation and disaster await our nation and the generation that rejects them. We cannot return to the paganism of æsthetic Greece or mighty Rome: the sunless night of total unbelief, or the chilling blasts of a cheerless agnosticism will constitute for our age its deadly peril.

Your worthy Chairman, in his introduction, gracefully emphasized the fact that religion and medicine run on lines that are parallel and act and re-act on each other with advantage that is mutual. It is not difficult to see the reason of this truth. The field of their respective activities are not of course coincident wholly; nor yet are they entirely disproportionate or out of common touch. The aims of both are not identical, yet are they akin and harmonious. Human life and human happiness are the lines within which both religion and medical science exert their activities. Man's physical well-being and the conservation of the life he has been appointed to lead upon earth form the subject-matter of medical science. Religion, on the other side, finds its province in consulting directly for man's moral well-being and for the right ordering of his life here with a view to its bearing upon a life that is not to end. But man is not a duality: he is one nature, one person. Consequently, we must expect to see the laws that govern him in the physical order affected by those that control him in the moral order. Such is the fact. Religion not only offers the man strong motives why he should hold himself subject to the laws of hygiene, but imposes moral restraints that act beneficially on his physical nature.

To every physician must come a time when he will be called upon to

> "Minister to a mind diseased;
> Pluck from the memory a rooted sorrow;
> Raze out the written troubles of the brain;
> And, with some sweet oblivious antidote,
> Cleanse the stuffed bosom of that perilous stuff
> Which weighs upon the heart!"

In that hour what influence can he find so potent as religion, which opens up to man the designs of Providence in ordaining or permitting the trials that press upon him.

Advanced medical science of the day regards physical pain not merely as a suffering which it were kind to give a patient relief from, but as a malignant agency to be overcome, if the sufferer is to be restored to strength and health. Hence the beneficent use of anesthetics. But no one knows better than the physician the power of mind over matter: and the need to bring quiet to the former that relief may be bestowed upon the latter. Here again is evidenced the power of religion. Acting as a spiritual anodyne, it controls agitation, allays fears, restores confidence, and places the sick in that state of calm, most desired by the physician, waiting and watching for the outcome of his treatment.

Thus ever aiding, never antagonizing your skill and your science, religion awaits the final effort of your noble craft, for final some such effort must be, since it has been appointed for all men once to die: and grateful for your services to the child of the human race who has reached his appointed term, she gently takes him from your beneficent hands and gives him back to the God, whose creature he is.

Strong, enduring and lasting, then, is the tie that binds religion and medicine. Let no misconception of the one or mistrust of the other set them asunder. United, they wield the giant power that can make the race of men happy for time and for eternity; parted, they would but seek to part man himself in the oneness of his life and drag him from the high estate to which God has called him.

The Chairman next introduced Sir Wm. H. Hingston, Professor of Clinical Surgery, Lavall University, Montreal, Canada, who thanked Professor Norton for his address, and for emphasizing the importance to the physician of imagination, and a thorough training in the liberal arts. The purely scientific special branches, bacteriology, anatomy and histology, are sure to put in their claims to time and strength, and apt to crowd out the study of literature and poetry. We do not need to go beyond the seas for the higher medical education. The higher education is what should be added to classical culture, the knowledge important for medicine. The profession of medicine should be entered upon only by men already skilled in the liberal arts.

After giving pleasant reminiscences of his associations with Dr. Holmes on the occasion of his former visit, the one-hundredth anniversary of the Society, the speaker again referred to the importance of general culture to the physician.

The educated mind alone can establish the connection between, and assign their relative importance to the different departments of medical science.

## CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

JOHN L. AMES, M.D., SECRETARY.

Regular Meeting, Wednesday, March 20, 1895, Dr. Geo. M. Garland in the chair.

Dr. Richard Hogner read a paper on

### INTRAVENOUS MEDICATED INJECTIONS ACCORDING TO PROF. GUIDO BACCELLI'S METHOD.[1]

Dr. Cumston: If I understand you, there was a difference in the pains and edema as you increased the quantity of the solution?

Dr. Hogner: There was no pain at all if the solution was injected directly into the vein, but if some drops were perivascular there was very severe pain.

Dr. Cumston: I happen to have in my pocket a syringe which might prove of use in the injection which Dr. Hogner speaks of. It holds one cubic centimetre. It is simply a glass barrel with metal piston which has an asbestos packing, which can be easily rendered aseptic by boiling. The needle is of platinum, and is made aseptic by passing it through a flame.

Dr. E. O. Otis read a paper on

### THE TREATMENT OF ADVANCED (HOPELESS) CASES OF PHTHISIS.[2]

[1] To be published in the Journal.
[2] See page 609 of the Journal.

DR. ARNOLD: I have had the pleasure of being associated with Dr. Otis and Dr. Fillebrown on the staff of the Free Home for Consumptives. This institution is supported by one of the charitable societies of the city, and draws its patients from the lower classes. We have 27 beds, and the cases are almost entirely of the class Dr. Otis speaks of, the hopeless cases. At first sight the treatment of those cases would seem to be monotonous and uninteresting. It certainly has been a surprise to me to find how much there is to do for them, and to see the great variety of the disease and how much experience we get from treating different symptoms. There is one drawback from the great variety of symptoms and from the fact that the cases are so commonly hopeless, and that is that in testing the effect of any one drug or system of treatment the opinion has to be made more from individual cases than from many statistics. I will speak of one or two points. I have been very much disappointed in creosote in its general use. I have found it of some use as a stomachic stimulant, but it has not seemed to me to influence the general course of the disease.

In speaking of antipyretics Dr. Otis mentioned pyretine. I have had a limited experience with that. In one case in particular it seemed to work favorably, with less depression and decidedly less sweating than any of the other antipyretics, of which I used both antipyrine and antifebrin in the same case.

In treating the pains that arose in different parts of the body, aside from the measures Dr. Otis has spoken of, I have found that salicylic acid or the salicylates in some form have been very useful.

Diarrhea has proved in some cases one of the most troublesome symptoms to control, and I think we are sometimes obliged to resort to morphine in quite large doses to control the activity of the bowels, particularly where it seems due to irritation from ulcers.

Strychnine has proved in my experience one of the most useful drugs that we have in treating cases in general, and not alone from its action on the heart; it has often given a great deal of relief to the breathing and to the distress in the chest.

There is another aspect to these advanced cases of phthisis, not connected directly with the treatment, which I should like to touch on: and that is the importance of the cases from the point of view of contagion, as foci for the dissemination of the disease. In inquiring into the history of the cases there, I found in several instances very clear proof that the case was acquired by contagion from some other member of the family. I think the advanced cases, where they are less able to take care of themselves, where the sputum is loaded with the bacilli, are decidedly more dangerous than the earlier cases of the disease. Particularly among the poor this question seems to be of great importance where the people are crowded together with improper accommodations. I feel like urging the medical profession to take some more active steps to arouse interest, not only among ourselves but in the community at large, to have something more done for the care of such cases. It seems to me it is of importance that those cases should be provided for in the public institutions, not simply as a matter of giving them proper care, but as a matter of protection to the community. The accommodations in Boston at present for such cases are painfully lacking. The larger hospitals are overtaxed in taking care of acute diseases and cannot spare beds for cases which take so long a time. Except for The Consumptives' Home which was formerly under Dr. Cullis's care, there have been to my knowledge, with the exception of the small Channing Home, no institutions where these cases are taken and properly cared for. The Free Home for Consumptives in its present form is doing good work, and its function needs little said in commendation; and I certainly hope we shall see in the near future not only an increase there, but other accommodations for such cases.

DR. FILLEBROWN: In regard to the matter of the supply of air to consumptive patients, it seems to me that we must consider it in a somewhat different light when we are treating a number of patients collected together in an institution. I have noticed that the patients have suffered from the effects of cold draughts. In the institution it is impossible to renew the air sufficiently without opening the windows, either at the top or bottom, to an extent which admits of too much circulation; and it seems to me that in the treatment of consumptives in institutions we should have special regard to the temperature and the supply of air. Our variations are so great and so frequent that the out-of-door air cannot be depended upon to provide the proper influences, therefore I think it should be modified in temperature and moisture by suitable apparatus. In a private house, of course, we can arrange that a great deal better.

In regard to the matter of digestion, I endorse the views of Dr. Otis almost entirely, and perhaps cannot add anything to what he has already said. I have found the charcoal, bismuth and soda mixture to be very useful in those cases of distress after eating. Almost invariably it has had a good effect. In the cases of anorexia I have used nux vomica and the dilute mineral acids, with perhaps whiskey or the tincture of gentian. Liquid peptonoids with creosote, where there is an inability to take food, has in a number of cases been very effective. Whether it is due to the creasote or not I do not know, but the stomach tone seems to be restored to a certain extent and the appetite has returned. It seems to me that in the earlier stages of the hopeless cases, creosote, when administered in moderate doses has been followed by good results. I have given, as a routine treatment to those able to take anything of this kind, malt and oil with creosote in milk. This combination does not sound pleasant; but they have been able to take it, and I think it is about the best way. I have in mind the case of a girl who had very serious lesions of both lungs, the apex of one and the other whole lung; she had improved a great deal and was feeling so well that she left the Home and entered employment as a domestic. As a result she returned in a very serious condition. When I first saw her after her return I remarked to the nurse that I did not think she would last very long. We put her on creosote, malt and oil, and I was surprised at the next visit to find her up and about, saying she felt better. She has steadily improved in three weeks since her entrance into the Home, and how much is due to creosote I am not in a position to say. I wish to make this point that the creosote has been followed by improvement, either by its effect upon the stomach or its elimination through the lungs.

Dr. Arnold suggested to me the use of pyretine, and in my service I made quite extensive experiments

with it. I must say it is the best antipyretic I have used. It was hinted that it was simply a combination of acetanilide and bicarbonate of soda, and to test it I had the nurse mix me some acetanilide and soda. I had previously used the pyretine on a patient suffering from extremely high temperature, and it brought it down with doses of three to five grains, within an hour or two without any apparent depression, sweating or exhaustion. Upon giving the acetanilide and soda there were great depression and fearful sweating, and the patient requested that we should not give her any more of that. I have a patient now in the Home suffering with high temperature and discomfort, and have given her the pyretine with the same result. Two-and-a-half-grain doses, at intervals of an hour will produce a change in the temperature as much as is desired.

In regard to the cough I have resorted to all sorts of things. The compound of white pine, which is so popular now, I find very useful in some forms of cough. Patients like it and seem to think it relieves them; and I think in these cases we have to rely on the feelings of the patients.

Grindelia robusta I have used somewhat, and had good results where there was much coughing and little expectoration.

I agree with Dr. Otis that the manner of coughing has a great deal to do with the ease or amount that the patient coughs. They do not know how to cough, and suggestions in regard to that are of the greatest value.

The strapping of the chest I have relied upon almost entirely where the pains were severe and would not yield to the ordinary methods of counter-irritation. That seems to satisfy the patients, and undoubtedly it relieves the pain by restricting the movements of the chest.

The diarrhea has been easily controlled by the salicylate of bismuth and the chalk-mixture. In some cases it has been so severe that we have had to resort to opium, and I have used laudanum. It seems to me the astringent effect of that is greater than in other preparations. Occasionally we have had to resort to morphia suppositories. When diarrhea is due to digestive disturbance I have found that the charcoal, bismuth and soda helps them a great deal; also the salicylate of bismuth yields good results in many cases.

Digitalis seems to be the only drug that will affect the heart satisfactorily in these cases. I have used it a great deal, and have combined it with strophanthus and nitro-glycerine where there was any congestion in the lungs. I have one patient now who has a very irritable heart due to displacement by contraction of the left lung. He has suffered from dyspnea at times, in which attacks he is seriously ill, but almost invariably he has responded to digitalis in a short time. It seems to me that that is the best heart tonic. I consider strychnia valuable and my experience bears out what Dr. Otis claims for this drug in all cases.

The sweating has been controlled by atropia. A great many of these patients expect to sweat, and do not consider it very serious or discomforting. When it is so severe as to saturate the sheets and the clothing, they call for some treatment, and I have every reason to be satisfied with atropia.

It seems to me we must, as Dr. Arnold says, come to the point of recognizing the importance of treating these cases of consumption in an institution. The worst cases are among the people who have not the care at home that is sufficient, and those are just the ones who need to be taken into a Home. We ought to recognize the importance of this for the welfare of the public in general, if not for the care of these patients. They are not a source of danger to others in an institution, as ample provision is made to do away with the sources of contagion.

DR. BARNES: I should like to ask Dr. Otis regarding the humidity of the atmosphere at which he keeps the patients' rooms? It seems to me the entire ignoring of this question in our public institutions and in our houses is something that we ought to take into consideration as physicians. We take air at zero into our houses through the cold-air boxes or the indirect system of steam-heating, and raise it to 70°, we have increased its capacity to take moisture two and a half times at least and with the exception of a small water-pan in the furnace, sometimes filled and sometimes not filled, no provision is made for moisture. Practically we convert a winter into a June temperature, and in that conversion we get a humidity of 30 or 40 in our houses, whereas with the normal June atmosphere it is 70 to 80. I think we all observe the comfort and agreeableness of a kitchen atmosphere in contrast with that of the upper rooms of our houses, and I have long been of the opinion that that comfort and that agreeableness was due to the tea-kettle which furnishes an abundance of moisture and enables us at 68° or 69° to be very comfortable, where in steam-heated apartments 75° or 80° is often required and then with feelings of discomfort from cold. Some years ago I resided at a house on Beacon Street where I was unable to get my room above 68°, and I found by hanging a wet towel over the radiator that 68° was a very comfortable temperature, while 72° or 74° in other rooms of the house would seem quite chilly. I do not know that in any of our institutions any consideration is given to the question of humidity, and I was very much surprised in visiting the Institute of Technology some years ago, to find no provision made for supplying moisture to the air, after passing over the coils of steam-pipes. This system of heating does not differ materially from the system employed for kiln-drying lumber.

I wish Dr. Otis would say something to us about the advantages or disadvantages of a high or low humidity of the air for lung patients; for it seems to me to be of consequence, materially affecting their comfort, if in a temperature of about 70° the humidity is from 30 to 40 or from 70 to 80.

DR. OTIS, in answer to questions, said: I have not experienced any untoward results in the use of strychnia in those advanced cases of phthisis. Hemorrhage occurs not infrequently, but I have not been able to trace any connection between the use of strychnia and the hemorrhage.

Regarding the care of the sputum, people are becoming pretty well educated now as to its danger and as to the methods of dealing with it, still one often meets with carelessness and ignorance regarding the danger from it and the way of avoiding it, not only in private cases, but in the health-resorts where numbers of phthisical patients live in boarding-houses and hotels. The physician needs constantly to watch his patients and their care-takers to see that no laxity in this respect creeps in.

With regard to moisture in the air, I will not go

into the consideration of the part moisture plays in the atmosphere as a matter of climatic treatment, because I have spoken of it elsewhere [3] in discussing climate in general.

As to the amount of moisture in sick-rooms and hospital wards, especially devoted to the treatment of this disease, it would be well, I think, if along with the temperature thermometer a wet and dry bulb thermometer should be used so that we could have an accurate register of the moisture as well as the temperature.

The oil of peppermint treatment has not been tried I believe — at least, I have not used it — in the Consumptive Home; the cases are all advanced ones and hardly suitable for this method of treatment.

DR. GARLAND: I recently received a letter from a patient whom I had sent to New Mexico, saying he was worse, that his cough had returned quite violently. I wrote describing this method of treatment, and asked his wife to prepare it and let him wear it. I received a letter this week saying it had worked like a charm in allaying his cough and mitigating many of the throat discomforts. This is only one case. But I believe it has been tried in a large number of cases with great success for alleviating the severe cough of phthisis and clearing out the nostrils. I think often the cough in phthisis comes from trouble in the nostrils as well as in the throat. Before I heard of this method I was in the habit of moistening the nostrils with a little peppermint for ordinary head colds. When this matter came up it occurred to me that its action might be largely local on the turbinates and on the congested mucous membrane of the upper air district; at all events, it does relieve the cough, and sometimes without the necessity of internal medication.

DR. GREENLEAF: I recall the treatment referred to by Dr. Prescott. It is that of Carossa. Peppermint by inhalation is combined with internal treatment, the theory being based on its antiseptic action, which it shares in common with other volatile oils. The combination used internally contained peppermint, creosote, glycerine and one or two other ingredients. I modified the use of the inhaler somewhat by using a small wad of absorbent cotton done up in cheese cloth which admits the air rather more freely than cotton cloth yet permits of saturation by the peppermint. I notice that there is a difference whether the peppermint is used in private or in hospital practice where patients are crowded together. In hospital practice the patients converse so much that they breathe through their mouths more than private patients do and the results are not as good.

I should like to call attention to one or two points in Dr. Otis's paper. We are not accustomed to associate digitalis and strychnia with the treatment of hemoptysis, but in certain cases there is no reason why we should not use these drugs, and we may with considerable advantage in selected cases. Of course, cases that are associated with extensive breaking down of tissues are scarcely to be treated in that way; but where they result from small oozing due to venous stasis, the use of digitalis is admirable. I have had occasion to use it in other classes of cases of hemorrhage due to venous stasis, and it works very well. I think our teachings hitherto in confining the use of digitalis so largely to cases of cardiac disease without thinking of its effect on the circulatory organs in other diseases are erroneous. Strychnia used in large doses has attracted our attention in the last few years, as a valuable respiratory stimulant. Dr. Otis's remarks call to mind the value of using any of these remedies from their physiological effect and not merely as routine treatment of so many minims three times a day.

[3] Climatic Therapeutics in the treatment of Pulmonary Tuberculosis, Boston Medical and Surgical Journal, July 19, 1894.

## ASSOCIATION OF AMERICAN PHYSICIANS.

TENTH ANNUAL MEETING, WASHINGTON, MAY 30 AND 31, 1895.

(Continued from No. 24, p. 602.)

THURSDAY. — AFTERNOON SESSION.

### A CONTRIBUTION TO THE STUDY OF THORACIC TUMORS,

by DRS. WILLIAM PEPPER and ALFRED STENGEL, Philadelphia, was read by title.

### ETIOLOGY OF IDIOPATHIC HYPERTROPHY OF THE HEART,

by DR. JAS. T. WHITTAKER, Cincinnati.

Hypertrophy independent of valve disease or obstacle to the circulation in the heart itself. The term is a misnomer. The condition is more frequent than is commonly believed.

Hypertrophies are due —

(1) To increased resistance in the vascular system. For example, arterio-sclerosis.

(2) To diseases of the heart muscle from infection, degeneration, etc.

(3) To affections of the nervous system.

The hypertrophy of age, of work, of plethora, of pregnancy, of alcohol.

Hypertrophy from Bright's disease, from diseases and deformities of the chest, emphysema, kyphosis.

Hypertrophy from myocarditis, syphilis, gout and diabetes.

Hypertrophy from irritation of the vagus, from abuse of tobacco, from excess in venery, etc.

DR. J. H. MUSSER: I have recently had several cases in which the occurrence of dilatation and the immense development of a mitral regurgitant murmur — in persons who previously had hypertrophy of heart, due to vascular changes — gave relief to the cardiac symptoms, to the violent palpitation, precordial distress, and, indeed, in three instances to attacks of angina. One patient, who had an aortic lesion, had a very severe attack of angina extending over a period of four or five weeks, so that her life was despaired of, but the development of the mitral murmur has relieved her of pain and other cardiac symptoms. This has occurred to me so often that I have been rather glad to welcome the development of the murmur of mitral regurgitation or dilatation in individuals who have had symptoms due to arterial tension and to the consecutive hypertrophy.

With the occurrence of this murmur, the type of the individual changes, he is broken down physically, but lives comfortably for several years afterwards without return of the hypertrophy or symptoms due to the high arterial tension.

I might also record an instance under my care three months ago, of a naval officer who was a constant smoker. The man, only fifty-two years of age, had an attack of tachycardia, palpitation and some anginoid symptoms. I suspected that tobacco was the cause of

it, but he protested that he had smoked since the age of fourteen. I consented to the use of tobacco again, when the attacks recurred and were quite serious. The final disuse of tobacco has caused the attacks to cease. The man has hypertrophy of the heart, but without high vascular tension.

THE TRANSMISSION OF MITRAL DIASTOLIC MURMURS,

by Dr. J. P. C. Griffith, Philadelphia.

The murmur of mitral stenosis is generally described as limited sharply to the mitral area or its immediate vicinity. Although usually confined to the region of the apex, it is not at all infrequently heard much beyond the ordinarily prescribed limits. The extensive transmission of the murmur more frequently obtains than is supposed even by those who admit its possibility. This is illustrated by the fact that seven cases related in this paper were all examined by the author within the last three months. In three cases the murmur was audible in the back; in one it extended two and half inches beyond the left posterior axillary line; in four it reached the anterior axillary line, and in two the mid-axillary line. In all it was audible very high up in the axilla.

Dr. Tyson: I examined the first case which Dr. Griffith mentions, and I can confirm all he has said with regard to the extent to which the murmur was transmitted. In connection with this, I wish to present a morbid specimen illustrating in a most striking manner the enormous dilatation of the left auricle which is associated with this condition. The case was admitted to my wards in the Hospital of the University of Pennsylvania. A woman of twenty-eight, with a previous history of lung obstruction and bloody, frothy expectoration. Along with this, there were some other symptoms which pointed to pulmonary disease rather than to cardiac disease. I must admit that, according to the notes of the clinical examination, I recorded a mitral systolic murmur, which of course may have been present; but the physical condition was one in which we would naturally expect a presystolic murmur. The dilatation was so very extreme and the heart so feeble that perhaps there was not impulse enough to push the blood through this narrow orifice with the production of a murmur.

Dr. J. T. Whittaker: It is important to determine, not so much the extent of the murmur, as the point of the greatest intensity. The extent of the murmur does not by any means tell the extent of the lesion. We can have a very loud murmur set up by a very slight lesion, and we can have some very extensive lesions in the valves without any murmur at all. A number of such cases have been reported. The intensity of the murmur is not an indication of the gravity of the disease.

Dr. Charles Cary: It seems to me that all of these cases have to be explained on absolute physical ground. Where there is a presystolic murmur which is due simply to the flowing of blood producing a flapping of the valve, without there being any strong power behind it, it is not going to produce any alteration in the size of the auricle, and in such cases, there would not be much sound transmitted. Where, however, there is a positive and marked stenosis of the mitral orifice, so that there is as a result a marked hypertrophy of the auricle, then the enlargement brings the blubbering, flapping sound in more immediate contact with the chest; and it can run almost in any line, depending on the size and the force of the muscle which drives the blood through the auriculo-ventricular opening. Under these circumstances you would get marked transmission of sound. It is rather difficult to understand as a physical fact, why, if there is a sufficient amount of deformity to produce a very marked presystolic or obstructive murmur, there should not be an accompanying mitral regurgitation. Sir Andrew Clarke puts the mitral presystolic or mitral stenosis murmur as one of the most frequent of the murmurs. He states that it has to be in most cases accompanied by regurgitation, because the deformity about that valve would almost of necessity lead to the backing of blood into the auricle.

Dr. J. H. Musser: I have been familiar with the work of Dr. Griffith, and can confirm what he has said. In a case under my care, that of a middle-aged woman, a presystolic murmur was heard very loudly, at the angle of the scapula posteriorly; and in connection with it, a reduplication of the second sound was noted in the upper axilla, as well as in the precordial region. In one instance this reduplication was heard in the upper axilla and not in any other portions of the chest.

Dr McPhedran: The restriction of the murmur described by most authorities is incorrect. I have noted in many cases the murmur more widely distributed than usually described by authors. I think that in these cases the murmur depends upon the tension of the current of blood in the pulmonary circulation, and not upon a condition of the left auricle. I think it is ventricular and not auricular.

Dr. A. H. Smith: It has long seemed to me that perhaps murmurs which we class as diastolic are in some cases systolic; that is to say, in conditions where there is disease at the auriculo-ventricular orifice, the mitral curtains are necessarily more or less stiffened at their base and consequently do not coapt perfectly in the very first instant of systole. The valve may be perfectly competent ultimately, but may not be so at the very moment the ventricles contract, and there is a regurgitation in that first instance of systole, which regurgitation ceases when the pressure behind the valves arrives at a certain point. It does not seem probable, when we consider the mechanism of the valves, that even under the most healthy conditions the mitral valve closes so instantaneously as not to permit of a slight amount of regurgitation. It is like any check valve, which presupposes a previous flow in order to move it into its seat.

Dr. C. G. Stockton: Does Dr. Griffith mean by this sound that which we ordinarily call the diastolic or the presystolic murmur?

Dr. J. P. C. Griffith: I do not think any explanation has ever been given why a murmur is loud at one time and not at another time; nor why a patient with a slight lesion may have a big murmur, and one with a big murmur may have a slight lesion. In a single case you can have on different days a difference in intensity, and even on certain days no murmur whatever. It is my own experience that we can base absolutely nothing on the intensity of the murmur with regard to the severity of the lesion. These murmurs in my cases were nearly altogether pure murmurs of mitral stenosis. In two cases there was also the murmur of mitral regurgitation. Under the term diastolic, I mean, as I tried to explain, any murmur which occurs in the diastole from the time of the closure of the second sound, up, till we get the impulse.

That was gone over very carefully by Dr. Bristowe a few years ago, who showed that the murmur of mitral stenosis may be one day heard about the middle of the diastole, another time at the beginning of the diastole, and again in the presystole. To me, this is all the same murmur. Some of the older writers divide it into the diastolic and presystolic and then the accentuated sound; but clinically I do not see how we can make any very sharp distinction.

### THE USE OF THE DIFFERENTIAL STETHOSCOPE IN THE STUDY OF CARDIAC MURMURS,

by DR. ANDREW SMITH, New York.

The differential stethoscope, which in its simplest form differs from the ordinary binaural stethoscope simply by having two thoracic extremities instead of one, each connected with its respective ear piece, enables us to hear separately two sounds produced at the same time in different localities. It is useful when we find that a murmur is produced at each of two cardiac orifices, but are unable to determine whether the two murmurs occur synchronously or alternately. This doubt may arise whenever the distinction between first and second sound is lost. This distinction is likely to be lost whenever the heart's action is considerably accelerated, while at the same time the distinctive quality of the sounds is marked by the presence of murmurs. In such cases the differential stethoscope enables us to decide whether both murmurs occur at the same time, or first one and then the other. It also determines whether murmurs produced at different orifices by the the same act of the heart are, or are not, exactly synchronous; an important point in the study of the action of the valves both in health and disease.

DR. J. T. WHITTAKER: The instrument would be very valuable in some cases if we could find individuals perfect in both ears, to use it. There is unfortunately, a difference in the two ears of individuals, and sometimes a very great difference, as in the case of Addison, who was entirely deaf in one ear but became so acute of hearing in the other ear, that he was the finest auscultator in London.

After all, in these cases, it is not so much the character of the murmur or the situation of it or the reduplication of it, that is of importance, but rather the condition of the muscle of the heart. Of the factors that go to make that picture of heart disease, the murmur is the most deceptive and affords the least valuable information. It is more important to determine the condition of the heart muscle as to its dilatation, and that is determined by its frequency of action.

DR. CHARLES CARY, Buffalo, read a paper on

### THE CAUSE OF THE EXAGGERATION OF SOUNDS OVER THE RIGHT UPPER CHEST, BOTH IN HEALTH AND DISEASE.

(1) All authorities describe a disparity in the physical signs, both in health and disease, between the superior lobes of the lungs.

(2) It is not satisfactorily accounted for by any author whose work has come under the notice of the writer.

(3) The right bronchus gives off a branch to supply the upper lobe immediately at but a short distance from the bifurcation of the trachea; this branch is not represented in the left side of man. In some animals this branch to the upper right lobe springs from the trachea itself, two or more inches above the bifurcation.

(4) Our common text-books on anatomy, with perhaps one exception, make no mention of this striking difference in the two sides.

(5) Exaggerated sounds of voice, breathing, percussion and fremitus on the right side under like conditions are to be accounted for by this bronchus, which serves as a much more direct transmitting medium.

DR. J. P. C. GRIFFITH: I would like to ask Dr. Cary how commonly present this arrangement of the bronchus is.

DR. CARY: I have made a great many castings of human lungs, and lungs of cats, rabbits, dogs, sheep and calves; and in all of these, although the arrangement differs somewhat in the different species, the right superior bronchus does not fail to come off very much higher than on the left side, and in some cases it comes off from the trachea. In dogs it is arranged not unlike that of the human lung. In all of the human lungs that I have been able to make castings from, that is the uniform arrangement. I have seen it come off immediately at the origin of the right bronchus.

### TWO CASES OF FAT NECROSIS,

by DR. C. G. STOCKTON, Buffalo.

Two cases of fat necrosis were given in detail, both males, both Swedes, and coming under the author's care within two weeks of each other. The autopsies showed a very similar condition present in each case — a condition rather at variance with what is usually found in such cases. In both there was well-marked disseminated fat necrosis, and in neither was there well-marked pancreatic change. Beyond the presence of a very limited number of areas of fat necrosis in the interstitial tissues of the gland and the occurrence of hemorrhages small in number and trifling in degree, the pancreas in neither case showed more change than is often seen in the perfectly healthy pancreas taken from the cadaver and preserved in the same way. The histological alterations in the pancreas are probably accounted for by the condition of the surrounding tissues.

DR. R. H. FITZ: I would take exception to the interpretation which Dr. Stockton seems to place upon his cases, in that he does not seem to attach that etiological importance to disease of the pancreas which the recent experimental work in this country and elsewhere seems to demand. In this connection, I wish to call attention to the fact that Dr. Whitney of Boston, formerly a member of this Association, has produced typical fat necrosis by experiments on the pancreas of dogs. Quite recently, Hildebrandt has reported numerous positive results in experiments on cats. These observations are all that is necessary to show that multiple fat necrosis associated with pancreatic disease is the result of such disease, a view which is in direct opposition to that of Balser and many German writers, and which seems to be the one favored in Dr. Stockton's communication.

DR. J. E. GRAHAM made a brief reference to a case of his own almost identical with one reported by Dr. Stockton.

DR. STOCKTON: I am very glad indeed to have the opinion of Dr. Fitz on these cases. I was prepared to hear him express himself as he did. The clinical appearance of these cases was identical with what I

had seen before in a case of pancreatitis without fat necrosis, and I had no way of determining before autopsy the difference between the cases. The conclusion reached by Dr. Williams, who made the autopsies, was entirely by histological and bacteriological methods. Dr. Williams began his investigation with the belief that he would find changes dependent upon pancreatitis. He was surprised to find that little change was evident in the organ in either case.

There is one point in the second case which I had hoped Dr. Fitz would notice and speak of, and that is the presence of necrotic matter in the abdominal wall. It has escaped my mind if anything of the kind has been noticed before.

Dr. Fitz: With reference to the occurrence of fat necrosis in the tissues of the abdominal wall, instances have been reported of fat necrosis being found as a rule in the subperitoneal fat, and in such cases, usually, similar subperitoneal patches of fat necrosis were found in the adjacent mesentery or omentum. The appearances of the colon described by Dr. Stockton suggested that a fistulous communication was about to be established between it and the cavity containing the fatty *débris* (presumably an omental bursa and the colon), as several cases have been reported of evacuation of such material from the lesser omental cavity into the stomach or into the intestine, portions of the sloughing pancreas even having been discharged through such opening.

*(To be continued.)*

## Recent Literature.

*Text-Book of Abdominal Surgery.* A Clinical Manual for Practitioners and Students. By Skene Keith, F.R.C.S., Ed., assisted by George W. Keith, M.B., C.M. With illustrations. Philadelphia: J. B. Lippincott Company. 1894.

The name of Keith is so associated with abdominal surgery that any book bearing this name is not to be lightly passed by. The authors have depended largely upon their own experience and methods, but these have been modified by their intimate relation with Dr. Thomas Keith.

The book is divided into two parts: first, surgery of the abdomen; second, surgery of the abdomen peculiar to women. The authors have adopted a style which is of peculiar value to this book. It is the illustrating of diseases by recording typical cases. While reading the book one constantly feels that what is written is the result of experience, and that the work is not simply a compilation of modern ideas. There is hardly a foot-note in the book, so that it cannot be considered an epitome of the subject — not but what due credit is given where it belongs. There are a few plates here and there, and diagrams which are copied from various sources, due acknowledgment being rendered.

The book is a model of its kind; it enters into the details of operations enough to make them perfectly clear. Sound surgical principles and accurate symptomatology are a marked feature of the work. We always welcome books of personal experience; and this is one which we feel sure should be added to the library of every surgeon.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, JUNE 20, 1895.

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## THE ALLEGED EXALTATION OF FACULTY IN "SECOND STATES."

In that popular novel, "Trilby," the principal interest centres in a remarkable phenomena of hypnotism. The heroine of the story when in her normal state is an indifferent singer; has, indeed, a fine voice, but no ear; in fact, can hardly tell one note from another. When in the hypnotic state and under the training and "suggestive" promptings of her tutor — when, as the daily contemporaries would put it, she has been Svengalized — she has both "ear" and "voice," becomes an accomplished and popular vocalist, and obtains wide celebrity. When in the natural state, she forgets her songs — words and musical expression — her notes are discordant and the breakdown is complete.

This, the capital part of the story, has been pronounced improbable and absurd. It is improbable; but there is something to be said in its defence. It is not wholly absurd, though no historical occurrence of the kind may be on record. That in some well-attested cases there is a wonderful exaltation of faculty under hypnotic influence and in "second states" (*dedoublement de la personnalité*) seems undeniable. Instances may be cited from Ribot,[1] Charcot,[2] Janet,[3] and many others. It is not contended that hypnotism ever imparts new faculties or acquisitions; at the most it can only — in perhaps exceptional cases — heighten such as already exist. If Trilby had possessed no voice or "ear" for music (delicate appreciation of musical tones) when she came under the spell of Svengali's baton, the hypnotic state could not have made her a singer, able to entrance audiences.

Binet and Féré[4] dispute the assertion so often made[5] that a somnambulist is an unconscious automa-

[1] Maladies de la Personnalité, chap. iii.
[2] Cliniques de la Salpêtrière, ii, xxix.
[3] Automatisme psychologique, p. 80, etc.
[4] Animal Magnetism, p. 147.
[5] *Vide* Carpenter, Mental Physiology.

ton — a puppet moving only as its strings are pulled — and allege examples of subjects who, during the hypnotic state, could perform intellectual feats of which they were incapable of in the waking state. Even natural dreaming is at times accompanied by exaltation of faculty, and mathematicians in their dreams have solved problems to which they had devoted the fruitless study of many days. Thus, Condorcet saw in his dreams the final steps of a difficult calculation which had long puzzled him; and many think that Coleridge's "Kubla-Khan," composed during sleep, may be ranked among his best efforts. The phenomena of the revival of supposed extinct memories during the delirium of fever is sufficiently well known.

Pierre Janet,[6] who believes in the essential identity of hypnotic somnambulism and states of double personality not brought about by hypnotic influence, relates some remarkable instances of complete recovery in somnambulism of sensibilities (many of these patients were anesthetic, anosmic, etc.) and of memories which seemed to be lost. Lucie and Leonie, Marie and Rose regain under hypnotism their lost senses and their memories. "If" says Janet, "somnambulism is a second existence, it is not necessarily a feeble existence without spontaneity, independence, and originality."

The case of Marguerite D. related at length by Georges Guinon in Charcot's "Clinique"[7] is an instance of heightened activity and heightened intelligence during the somnambulic state. Marie H., an inmate of the Salpêtrière, in her normal state does not know how to read or write or count. Can do coarse sewing and stitching, but cannot embroider, do lace work, or crochet work. In the second, or "vigilambulic" state, she can read and write and count, do crochet work and embroider — acquisitions taught her since she came to the Salpêtrière and in the "second state," which is her better state.[8]

As concerns the fact that the acquisitions made in the state of vigilambulism are dormant — not manifest — in the ordinary waking state, Guinon observes that this may be because the notions acquired in the second state are less profoundly implanted than those of the normal state, but a perfectly satisfactory explanation is wanting.

Ladame describes an entire change of personality in a patient of his, of which a report appears in the *Annales de la Société Medico Psychologique*, January, 1888. In the second state the patient was more active and alert than when in the normal state; she was also free from anesthesia and other hysterical stigmata which characterized the normal state. When in the latter state she always lost at a game of cards, while in the second personality she invariably won.

In the patient of Bonamaison, an hysterical female, related in Charcot's "Clinique,"[9] the mental faculties were more exalted in the second state than in the first. "The expression of the countenance is different. The eyes are more brilliant, the manner more engaging; she converses and laughs with more animation. Very docile in the normal state, she becomes in the second state wilful and capricious. In this state she can do the finest needle-work and embroidery with a dexterity utterly foreign to the normal condition. The intelligence and memory are in fact exalted. She remembers multitudes of facts which are quite forgotten in the normal state. I have often heard her sing when in the somnambulic state an English ditty learned in her childhood and of which she does not know the first word when in her normal state." Guinon regards this as a case of double personality (*dedoublement de la personnalité*) of hysterical nature.

Dufay's patient[10] in the somnambulic state is much more active, and her senses seem endowed with extraordinary hyperacuteness. "She looks for and finds objects in full darkness. She threads a needle in the dark, and with her hands under the table. She talks fluently while working, but somewhat after the manner of children, using *me* for *I*. 'Quand moi est bête' (when I am in the brute state) signifies 'when I am not in somnambulism.'"

There are a few other cases of a similar kind on record, as those of Azam, Camuset, and Verriest. These phenomena of double personality are almost always connected with hysteria. Without venturing here any interpretation of these singular psychological phenomena (a work very well done by Pierre Janet in his last treatise, "Accidents Mentaux des Hystériques"), we may refer to one more instance of heightened intellect — during the second state — the patient M., of Jules Janet, at the Hôpital Pitié, who was reduced to the last extremity by a prolonged attack of gastric hysteria. There was general anesthesia and the limbs were in a state of partial catalepsy; there was retention of urine by spasm of the sphincter. When brought into the hypnotic state, all these infirmities disappeared. Appetite, digestion, strength returned, and the patient seemed entirely well, only to fall back into her anesthesia and other morbid states when she came out of the hypnotic state. It was found necessary to keep her in a condition of induced somnambulism. This was done by the Janets for a space of five years. During this period she pursued successfully a course of professional study and passed difficult examinations. When she is in the first state she forgets a large part of these acquisitions, and the five years she has passed seem a blank. The induced somnambulism has become to this patient a second existence far more complete than the first.[11]

[6] Automatisme psychologique, p. 178, Paris, 1890.
[7] Clinique des Maladies du Syst. Nerv., ii, p. 252.
[8] Loc. cit.
[9] Charcot: loc. cit., p. 198.
[10] La notion de la personnalité, Revue Scientifique, 1876.
[11] Pierre Janet: État Mental des hystériques, p. 212.

COMPULSORY VACCINATION IN SPAIN. — A committee of the Spanish Chamber of Deputies has reported in favor of making vaccination compulsory in Spain. It is expected that the proposed measure will encounter some opposition when it comes under discussion in the Chamber.

## SHOULD A PRELIMINARY COURSE IN THE LIBERAL ARTS BE REQUIRED FOR ADMISSION TO OUR MEDICAL SCHOOLS?

Prof. Charles Eliot Norton, speaking at the recent dinner of the Massachusetts Medical Society, emphasized the importance to the medical man of general culture, of ability to get occasionally out of the ruts of medical thought — and how deep these are only the doctors know — and take their pleasure in the wider fields of literature, art and philosophy. The requirements of modern medicine, nay, even of a single specialty, are so exacting, and even the most seemingly limited field is so wide in its important relations, that the conscientious student feels that all his time is not enough even for its mastery, and an imperfect mastery at that. All his time he must give; unceasing work day and night would not be enough. He devotes himself to his task with dogged persistence, works year out in and year out to utter weariness, becomes narrow and crabbed, acquires a kind of mental wry-neck from looking at life from the single vantage-point of his chosen specialty, talks and thinks only of his chosen work until he is capable of nothing else. Perhaps when his life draws to a close he may be satisfied with himself, perhaps not. But sooner or later he is brought into contrast with another worker in the same field. He has worked hard and late at night also, and his work has been done with enthusiasm and at high pressure; but instead of giving all of his time to it he has found a little each day for rest and healthy recreation, a little to give to his duties as a citizen, and a little to music, to good literature, to history, to philosophy, to the study of life in its wider aspects. When he returns from his relaxation to his medical work he comes to it with a vim, and snap, and energy born of his relaxation; his views are more comprehensive and human; he sees things in their broader relations. At the end of the same number of years he has probably a firmer grasp of his special subject than his brother who has done nothing but follow his single bent.

So wide and far-reaching are the relations of medicine to science, to literature, to art, to human life, that we may truly say, the broader the culture of the man, the better physician will he make. The training and discipline of a course in science or the liberal arts will, beside furnishing a man with an avocation, equip him with the ability to do greater and better work in his medical studies.

It is well recognized that in this country we have more doctors than the community needs, more than can make an honest living by the practice of medicine. Our medical schools, however, are each year more crowded, and larger classes are turned loose upon the community. The stress of competition and pressure of want drives some each year to the adoption of what is called low standards, that is, in plain language, to professional dishonesty and quackery, either open or overt. We have too many doctors. We want better doctors and less of them.

Now, how shall the standard be raised? In the first place, would it be raised by restricting the admission of candidates to the graduates of colleges or the higher scientific or technical schools, or men who could show evidence of having done a commensurate amount of work under private tutorship? Certainly it would. The men who lead the classes and do the hard work in our medical schools are now, with few exceptions, the graduates of colleges and scientific schools; and the leaders in medical science and practice are recruited with striking uniformity from the men of liberal education.

The requirement of a liberal education, then, for admission to a medical school would tend to decrease the number of medical candidates, and to raise the average standard of ability in the school and the profession.

We have a right, then, to ask why such action is not taken at once by the faculties of our medical schools. The answer is, that it has not been done for two reasons: first, that the students if required to finish a course in the liberal arts would be so old in beginning their long course of medical study that they could not qualify for practice before the age of twenty-seven or twenty-eight, and, second, that the medical schools are dependent on the tuition fees for their actual running expenses, and could not therefore afford to take action which would reduce the size of their classes.

With regard to the first objection, we can only say that if hard, earnest work were made a requisite for graduation at our colleges and preparatory schools, and their standards were not lowered so as to allow men to pass whose degree represents only a minimum of work, and means nothing to any one except to their parents — proud in the liberal education of their progeny — the degree in the liberal arts could be easily secured at an average age at least two years younger. Many of the brighter men in our colleges do two years' work in one, and secure early graduation. And that, we notice, without seriously injuring their health. It is keeping the brighter men back to the pace of the loafers and dunces which makes the average age at graduation so high.

With regard to the second objection, namely, poverty of the schools, we can only say the more true the greater pity. That our best medical schools should be forced to sacrifice the best interest of the profession they educate in order to maintain their own existence is truly a shameful compromise. The need of endowments for our schools is a crying one. If some of the money spent in founding new medical schools were put in the form of endowments for old ones, it were far better spent.

If the rich men of to-day could be made to realize the great importance of this matter, and to understand that unless they endow the medical schools their descendants will be likely to fall into the hands of inferior physicians, our schools might be placed above this shameful necessity.

## MEDICAL NOTES.

APPOINTMENTS AT JOHNS HOPKINS UNIVERSITY.— At the Johns Hopkins University Dr. Simon Flexner has been advanced to Associate Professor of Pathology and Dr. William S. Thayer to Associate in Medicine.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. — A Section on Gynecology has been organized in the College of Physicians of Philadelphia. Dr. Charles B. Penrose was elected Chairman, and Dr. John B. Shober, Clerk for the ensuing year.

UNIVERSITY OF PENNSYLVANIA. — The one hundred and twenty-ninth annual session of the Medical Department of the University of Pennsylvania, the seventeenth annual session of the Dental Department, and the eleventh annual session of the Department of Veterinary Medicine having just come to an end, the Annual Commencement was held at the Academy of Music, June 13th. The valedictorian was Prof. H. C. Wood. A class of 250 was graduated in medicine. A portrait of the late Prof. William Goodell, a bust of Prof. Joseph Leidy and a portrait of Prof. Horatio C. Wood were presented, and were duly accepted by the Board of Trustees. The new Provost, C. C. Harrison, Esq., was installed into office by the Governor of Pennsylvania and the Board of Trustees. The first official act of the Provost was the presentation of a permanent fund of half a million dollars, to be known as the "George Leit Harrison Fund."

THE CLIMATIC ADVANTAGES OF CAPE MAY. — The Government weather reports show that the mean relative humidity of Cape May is but 77, as compared with 80 for Atlantic City. The average temperature for the year is a little over one degree higher for Cape May, the difference between the temperature of the two places being slightly greater in the winter than in the summer months.

A DECISION AS TO A PHYSICIAN'S LIABILITY.— The *Cincinnati Lancet-Clinic* is authority for the statement that a late Iowa Supreme Court decision makes a physician liable for damages accruing from his having dismissed a case too soon.

PROFESSOR ESMARCH, of Kiel, was on May 28th elected correspondent of the Academy of Medicine of Paris.

A PROFESSOR OF PATHOLOGY FOR DUBLIN. — The Board of Trinity College, Dublin, have given notice that on June 22d they will elect a Professor of Pathology in Dublin University for the first time.

CONGRESS OF THE FRENCH SURGICAL ASSOCIATION. — The Ninth Congress of the French Surgical Association will be held at Paris, at the Faculty of Medicine, on Monday, October 21st, under the presidency of Dr. Eugene Boeckel. The subjects for discussion will be "The Surgery of the Lung," M. Reclus; "On Surgical Interference Early or Late in Solutions of Continuity of the Skull," M. Heydenreich.

THE INTERNATIONAL CONGRESS OF GYNECOLOGY AND OBSTETRICS. — The second session of the International Congress of Gynecology and Obstetrics will be held at Geneva during the first two weeks in September, 1896, and not as has been announced in some journals in 1895. The subjects for discussion in Obstetrics are "The Relative Frequency and Varieties of Pubic Deformity Peculiar to Different Countries," and "The Treatment of Eclampsia." The subjects in Gynecology are "The Operative Treatment of Retrodeviations of the Uterus," "Pelvic Suppuration and its Treatment," and "Methods of Suturing the Abdominal Walls, with the Object of avoiding Abscess, Hernia, etc."

STRYCHNINE POISONING THROUGH THE MEDIUM OF CIGARETTES. — The *Medical Press and Circular* quotes from a Russian journal an account of a chemist who carried loose in his pocket two capsules containing five grammes of strychnia, and six cigarettes. A severe convulsion, with cyanosis, trismus opisthotonus, which nearly proved fatal, was the result. When the chemist felt the earlier symptoms, restlessness and agitation coming on, he examined the capsules, and found that one of them had burst, and its contents were adhering to the card-board mouth-piece of the cigarettes. This is an excellent story; but a chemist who could not taste strychnia when placed in his mouth in quantity sufficient to poison him, and who under the circumstances did not throw the cigarettes away, must have been possessed of a palate which would enable him to smoke a very poor quality of tobacco.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, June 19, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 70, scarlet fever 27, measles 96, typhoid fever 11.

ADDRESS AT YALE UNIVERSITY. — Dr. T. Mitchell Prudden delivers the Annual Address in Medicine before the medical faculty and medical students of Yale University on Tuesday, June 25th.

### NEW YORK.

REORGANIZATION OF THE ANTI-VACCINATION SOCIETY. — At a meeting of about fifty persons held at the Fifth Avenue Hotel on June 5th the "Anti-Vaccination Society of America" was revived and reorganized.

A WEDDING IN AN HISTORIC CHURCH. — On June 4th Dr. William L. Vroom was married in the historic old Paramus Church, near Ridgewood, New Jersey. This is said to be the first wedding ceremony held in the church since Aaron Burr and Theodosia Prevost were married there on July 2, 1782.

DIVISION OF THE DEPARTMENT OF CHARITIES AND CORRECTION. — On June 5th the Governor signed the bill dividing the Department of Charities and

Correction of New York City into two separate departments, and providing for them Commissioners of Charities and one Commissioner of Correction, each removable at the Mayor's pleasure. This is a reform measure which has long been desired, as it draws a sharp line between those public institutions which are of a penal character and those which are charitable. The new commissioners are to be appointed for a term of six years each and the formal separation of the two departments is to take place on January 1, 1896.

## Miscellany.

### MILK-BORNE THROAT ILLNESS: PHENOMENAL EPIDEMIC.

DR. KENWOOD records a somewhat unique outbreak of throat illness in Finchley in November last, followed by what was undoubtedly a prevalence of true diphtheria. The throat illness was of short duration, thanks to Dr. Kenwood's efforts to trace the cause so soon as cases began to be notified, he having concurred in the conclusion already arrived at by the private medical attendant of many of the patients that the malady was not diphtheria. Acute symptoms set in rapidly, and the cases tended to group themselves in one particular neighborhood, houses being in several instances invaded by multiple attacks, and houses of all classes and sanitary conditions being affected, the one community of this condition being, as Dr. Kenwood soon discovered, their milk-supply. His suspicions were strong by the fourth day of the outbreak, and twenty-four hours after the issue of a handbill warning all persons to boil their milk, the epidemic was stayed as suddenly as it had started. Not only could Dr. Kenwood exclude all other known causes of diphtheritic disease, but it was seen that better class houses, those using most milk, were most largely attacked — though children were not mainly sufferers — adults over twenty years of age being in the proportion of two to each child patient. Nothing was discovered amiss with the throats of the milkers of the cows supplying the implicated milk, but three of the cows were found to have diseased teats, and one had a chronic abscess on her udder. Of the 17 per cent. of total houses supplied by the milk, there were as many as 94 per cent. invaded in the period November 8th to 18th. Dr. Kenwood comes to the conclusion that climatic conditions preceding the outbreak, together with the cold, damp soil and the season of the year, sufficed to give rise to throat ailment, which, by reason of the milk infection, acquired an aggravated property and marked infectiousness — one of its prominent features throughout. Meanwhile, and while the throat illness was in progress of development, there began on November 13th a series of true diphtheria cases, which increased to 38 by the 25th, there being 28 houses invaded, and 25 of the patients being persons who had a few days previously suffered from the minor throat malady. Secondary infection seemed in every case improbable, and a progressive development of diphtheria from the former illness appeared most probable, bacteriological investigation with material from the cases of throat trouble having satisfied Dr. Kenwood that the milk throats were not those of diphtheria. Whence the diphtheria came Dr. Kenwood feels unable to say, but he opines that the milk-caused throat trouble laid the foundation for the subsequent diphtheria by rendering the throat incapable of resisting the graver malady. The case is one of exceptional interest to sanitary workers, and certainly deserves a place among milk outbreaks. The mildness of the disease — whatever its true nomenclature — may be gathered from the fact that only one death was registered from diphtheria in Finchley in the whole of the fourth quarter. Incidentally, Dr. Kenwood raises the question of the desirability of frequent skilled inspection of animals in dairies and cowsheds by some competent body, and we commend the suggestion to the central authorities.— *British Medical Journal.*

## Correspondence.

### BICYCLE SADDLES.

BOSTON, 76 MARLBOROUGH ST.,
June 18, 1895.

MR. EDITOR: — I have had some experiments made with bicycle saddles such as Dr. Chadwick refers to in his paper in the last number of the JOURNAL.

I have found that the saddle without the anterior projection, although theoretically desirable is impracticable. It does not give a secure seat.

Yours, etc.,
CHARLES W. TOWNSEND, M.D.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 8, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diarrhœal diseases. | Diphtheria and croup. | Measles. |
| New York | 1,956,000 | 935 | 406 | 20.35 | 10.56 | 5.50 | 5.39 | 4.51 |
| Chicago | 1,600,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | — | — | — | — | — | — | — |
| Brooklyn | 1,043,000 | 463 | 172 | 15.18 | 7.92 | 6.16 | 5.06 | 1.58 |
| St. Louis | 540,000 | — | — | — | — | — | — | — |
| Boston | 501,147 | 225 | 56 | 9.68 | 22.44 | — | 5.72 | .88 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | — | — | — | — | — | — | — |
| Cincinnati | 325,000 | 151 | 53 | 13.25 | 11.22 | 1.32 | — | 4.02 |
| Cleveland | 325,000 | 80 | 25 | 13.75 | 13.75 | 2.50 | 2.50 | — |
| Pittsburg | 272,000 | — | — | — | — | — | — | — |
| Milwaukee | 265,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 28 | 8 | 17.85 | 14.28 | 7.14 | — | — |
| Charleston | 65,165 | — | — | — | — | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 22 | 6 | 4.55 | 4.55 | 4.55 | — | — |
| Fall River | 92,333 | 28 | 13 | 28.56 | — | 28.00 | — | — |
| Lowell | 90,813 | — | — | — | — | — | — | — |
| Cambridge | 79,607 | 25 | 11 | 16.00 | 8.00 | 4.00 | 8.00 | — |
| Lynn | 65,123 | — | — | — | — | — | — | — |
| Springfield | 50,394 | 15 | 5 | 33.33 | 13.33 | 13.33 | — | 13.33 |
| Lawrence | 49,900 | 19 | 10 | 15.78 | 5.26 | — | — | 5.26 |
| New Bedford | 47,741 | 21 | 9 | 9..2 | 23.80 | 9.52 | — | — |
| Holyoke | 43,548 | — | — | — | — | — | — | — |
| Brockton | 33,929 | 4 | 1 | — | 25.00 | — | — | — |
| Salem | 33,155 | — | — | — | — | — | — | — |
| Haverhill | 32,926 | 10 | 1 | — | 30.00 | — | — | — |
| Malden | 30,209 | 6 | 1 | 33.33 | — | — | — | — |
| Chelsea | 29,806 | — | — | — | — | — | — | — |
| Fitchburg | 29,283 | 4 | 2 | — | 25.00 | — | — | — |
| Newton | 28,837 | 9 | 2 | — | — | — | — | — |
| Gloucester | 27,293 | — | — | — | — | — | — | — |
| Taunton | 26,964 | 17 | 1 | 15.62 | 5.88 | — | 15.62 | — |
| Waltham | 22,058 | 6 | 2 | 16.66 | — | — | 16.66 | — |
| Quincy | 19,642 | — | — | — | — | — | — | — |
| Pittsfield | 18,863 | 4 | 3 | 25.00 | 25.00 | — | — | — |
| Everett | 16,580 | 2 | 0 | — | — | — | — | — |
| Northampton | 16,331 | 4 | 1 | — | 25.00 | — | — | — |
| Newburyport | 14,073 | — | — | — | — | — | — | — |
| Amesbury | 10,920 | 4 | 0 | — | 50.00 | — | — | — |

Deaths reported 2,171; under five years of age 817; principal infectious diseases (small-pox, measles, diphtheria and

croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 345, acute lung diseases 248, consumption 262, diphtheria and croup 97, diarrheal diseases 92, measles 70, scarlet fever 25, whooping-cough 15, typhoid fever 21, cerebro-spinal meningitis 12, malarial fever 6, erysipelas 5, small-pox 2.

From scarlet fever New York 17, Cleveland 3, Boston 2, Brooklyn, Fall River and Lawrence 1 each. From typhoid fever New York 5, Boston 4, Cincinnati and Cleveland 3 each, Nashville and North Adams 2 each. Brockton and Pittsfield 1 each. From whooping-cough New York 8, Brooklyn 5, Cincinnati and Cambridge 1 each. From cerebro-spinal meningitis New York 9, Cleveland, Springfield and Lawrence 1 each. From malarial fever New York 3, Brooklyn, Boston and Nashville 1 each. From erysipelas New York 3, Brooklyn 2. From small-pox Cincinnati 2.

## METEOROLOGICAL RECORD.

For the week ending June 8th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather. | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S .. 2 | 29.83 | 82 | 96 | 69 | 40 | 43 | 42 | N.W. | W. | 9 | 12 | C. | O. | .04 |
| M.. 3 | 30.04 | 56 | 60 | 52 | 70 | 86 | 78 | E. | E. | 16 | 7 | C. | O. | .09 |
| T .. 4 | 30.19 | 54 | 57 | 51 | 86 | 88 | 87 | N.E. | E. | 6 | 7 | R. | O. | |
| W.. 5 | 30.04 | 64 | 73 | 56 | 95 | 89 | 92 | S. | S. | 4 | 20 | O. | O. | |
| T .. 6 | 29.98 | 70 | 77 | 62 | 95 | 85 | 90 | W. | W. | 11 | 12 | O. | O. | |
| F .. 7 | 30.27 | 60 | 65 | 56 | 62 | 80 | 71 | N.E. | N.E. | 15 | 6 | O. | C. | |
| S .. 8 | 30.31 | 58 | 66 | 50 | 38 | 45 | 40 | N.E. | N.E. | 18 | 12 | C. | C. | |
| ☛ | | | | | | | | | | | | | | 0.13 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☛ Mean for week.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 8, 1895, TO JUNE 14, 1895.

CAPTAIN JAMES E. PILCHER, assistant surgeon, will be relieved from duty at Fort Niagara, N. Y., upon the expiration of his present sick leave, and will report in person to the Commanding Officer, Columbus Barracks, Ohio, for duty at that station.

CAPTAIN LOUIS BRECHEMIN, assistant surgeon, will be relieved from duty at Columbus Barracks, Ohio, upon the return from leave of absence of MAJOR WILLIAM E. WATERS, surgeon, and will proceed to, and take station at Baltimore, Maryland, as attending surgeon.

CAPTAIN HARRY O. PERLEY, assistant surgeon, upon the completion of his examination, for promotion, will proceed to Hot Springs, Arkansas, and take charge as Commanding Officer of the Army and Navy General Hospital, relieving LIEUT.-COLONEL ALFRED A. WOODHULL, deputy surgeon-general.

LIEUT.-COLONEL WOODHULL on being thus relieved will report in person to the Commanding General Department of the Colorado, for duty as medical director of that department relieving LIEUT.-COL. DAVID L. HUNTINGTON, deputy surgeon-general. LIEUT.-COL. HUNTINGTON on being thus relieved, will report in person to the surgeon-general for duty in charge of the Museum and Library Division of the Surgeon-General's Office, relieving LIEUT.-COL. JNO. S. BILLINGS, deputy surgeon-general.

CAPT. JOSEPH T. CLARKE, assistant surgeon, is relieved from duty at Fort Omaha, Nebraska, and ordered to Fort Washakie, Wyoming, for duty, relieving CAPTAIN HENRY I. RAYMOND, assistant surgeon.

CAPT. RAYMOND on being thus relieved, is ordered to Fort Niagara, N. Y., for duty at that post.

CAPTAIN PHILIP G. WALES, assistant surgeon, now on temporary duty at Fort Niagara, N. Y., upon the arrival of CAPT. RAYMOND at that post, will return to his proper station.

CAPTAIN WILLIAM J. WAKEMAN, assistant surgeon, will be relieved from duty at Fort Thomas, Ky., upon the arrival there of CAPT. ROBERT J. GIBSON, assistant surgeon, and will upon the expiration of the leave of absence granted him, report for duty at Fort Huachuca, Arizona.

### PROMOTIONS.

To be assistant surgeons with the rank of captain after five years' service, June 6, 1895:

FIRST LIEUTENANT FRANK R. KEEFER, assistant surgeon.
FIRST LIEUTENANT THOMAS U. RAYMOND, assistant surgeon.
FIRST LIEUTENANT HENRY D. SNYDER, assistant surgeon.
FIRST LIEUTENANT ALLEN M. SMITH, assistant surgeon.
FIRST LIEUTENANT ASHTON B. HEYL, assistant surgeon.
FIRST LIEUTENANT JOSEPH T. CLARKE, assistant surgeon.

CAPTAIN CHARLES RICHARD, assistant surgeon, is relieved from duty at the U. S. Military Prison, Fort Leavenworth, Kansas, to take effect June 30, 1895, and will proceed to comply with the order for him to take station at St. Louis, Missouri.

Leave of absence for two months, to take effect about July 1, 1895, is granted COLONEL FRANCIS L. TOWN, assistant surgeon-general.

CAPTAIN HARRY O. PERLEY, assistant surgeon, will report in person to COLONEL CHARLES H. ALDEN, assistant surgeon-general, president of the examining board appointed to meet in this city, at such time as he may be required by the board for examination as to his fitness for promotion, and upon the conclusion of his examination to return to his proper station.

Leave of absence for one month and twenty days, to take effect on or about August 10, 1895, is granted MAJOR LOUIS M. MAUS, surgeon.

CAPTAIN EDWIN F. GARDNER, assistant surgeon, is relieved from duty as attending surgeon and examiner of recruits in Boston, Massachusetts, and will report in person to COLONEL CHARLES H. ALDEN, assistant surgeon-general, president of the examining board appointed to meet in this city, for examination by the board as to his fitness for promotion, and upon conclusion of his examination, will report for duty at Fort Grant, Arizona.

Leave of absence for three months to take effect when he shall be relieved from his present duties, on or about June 30, 1895, is granted CAPTAIN CHARLES RICHARD, assistant surgeon.

## OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDING MAY 31, 1895.

J. B. HAMILTON, surgeon, granted leave of absence for five days, May 15, 1895.

G. W. STOVER, surgeon, granted leave of absence for one day, May 22, 1895.

F. W. MEAD, surgeon, to proceed to Portland, Maine, and assume command of service, May 18, 1895.

J. J. KINYOUN, passed assistant surgeon, granted leave of absence for seven days, May 30, 1895.

R. M. WOODWARD, passed assistant surgeon, granted leave of absence for thirty days, May 23, 1895.

G. B. YOUNG, passed assistant surgeon, detailed to make physical examination officer Revenue Cutter Service, May 24, 1895.

M. J. ROSENAU, passed assistant surgeon, to proceed to Staunton, Va., for special temporary duty, May 17, 1895.

NORMAN SEATON, assistant surgeon, to rejoin station at Baltimore, Md., May 25, 1895.

EMIL PROCHAZKA, assistant surgeon, to proceed to Cleveland, O., for temporary duty May 25, 1895.

## APPOINTMENTS.

DR. M. H. RICHARDSON has been appointed Assistant Professor of Clinical Surgery in the Harvard Medical School, and DR. FRANKLIN DEXTER, Assistant Professor of Anatomy.

## RESIGNATION.

DR. A. M. SUMNER has resigned his position as visiting physician at the Boston City Hospital.

## RECENT DEATH.

H. W. WILLIAMS, M.D., M.M.S.S., died in Boston, June 14, aged seventy-three.

## BOOKS AND PAMPHLETS RECEIVED.

Diseases of the Nervous System. By W. R. Gowers. Reprint. 1895.

Thirty-fourth Annual Report of the Cincinnati Hospital for the Fiscal Year Ending December 31, 1894.

Some Impressions of Gynecology in Europe. By Hunter Robb, M.D., Professor of Gynecolgy, Western Reserve University. Reprint. 1895.

## Original Articles.

### THE IMMUNIZING EFFECTS OF ANTITOXIN.[1]

BY F. GORDON MORRILL, M.D.,
*Visiting Physician to the Children's Hospital, Boston.*

BEFORE describing the results obtained from 438 immunizing injections of antitoxin at the Children's Hospital, I will briefly explain the reasons which have rendered such an extensive use of the serum necessary.

The policy of the institution has always been to decline to admit cases of such diseases as are generally regarded as infectious; and the building originally included but two small rooms for the isolation of such cases as might appear among the patients in the house. After a time (as might be naturally expected in any large congregation of children), endemics occurred, and larger, but (in the light of recently acquired experience) insufficient quarters were provided.

During the year 1894, cases of diphtheria occurred so frequently as to necessitate the closing of the hospital, and disinfection of the wards, on three separate occasions; to the great inconvenience of all concerned, and with serious detriment to the usefulness of the institution.

It was thought at first, that the infection was introduced by the parents or friends of the patients; and blouses and disinfectant washes for the faces and hands of all visitors were prescribed. But in spite of these precautions, fresh outbreaks occurred, and we were reluctantly forced to the conclusion that the Klebs-Löffler bacillus had installed itself as a permanent and most unwelcome guest within our walls, and stood in no need of an introduction.

Furthermore we convinced ourselves that the chief source of trouble was confined to one ward, where grave defects of ventilation were discovered. Some time elapsed before this last conclusion was reached; for while cases of diphtheria were more frequent in this ward than elsewhere, the fact that the majority of the children were in the habit of meeting in the play-room, had led to such a distribution of the infection as to give rise to cases in all parts of the hospital. The type which the disease assumed was seldom frank; children with coryza or slight tonsillitis and scarcely any constitutional symptoms, would perhaps fatally infect others, and in many instances repeated bacteriological examinations of the secretions alone showed when the trouble began and ended — no membrane or other clinical evidence of diphtheria being present at any time.

January 13, 1895, there were nine cases in the infectious wards, four or five of which had been transferred from the house within forty-eight hours.

The question of closing the hospital for the fourth time was discussed, and it was decided to first try immunization with antitoxin, in the hope that this course might enable us to maintain open doors and go on with our work. The staff was so kind as to give me *carte blanche*, so far as the diphtheria was concerned, and within thirty-six hours, thirty-nine patients who remained in the house, and three nurses who were on duty in the contagious wards, received each an injection of five cubic centimetres of the serum prepared at the Pasteur Institute of New York, according to the formula of Roux.

The apparent result of this first attempt was to instantly arrest any further spread of the disease. Patients in the contagious wards were disinfected and returned to the house as soon as negative reports of the cultures of two specimens taken forty-eight hours apart, were received from the bacteriological laboratory of the Harvard Medical School. No patients were admitted with any suspicious symptoms in their noses or throats; and all new-comers received an injection of five cubic centimetres on entrance. Specimens were obtained frequently from all patients, and reports of the cultures were all negative until January 29th, when a boy who had reacted perfectly well to an immunizing dose, was found guilty of harboring the Klebs-Löffler bacillus, and was at once transferred to the contagious wards. The specimen from which this positive culture was obtained, was taken sixteen days after immunization; and while there was no certainty that the bacillus had not been present for an indefinite time in this particular case (through an oversight, no previous culture having been made) it was thought best to inject antitoxin again in all cases which had not been immunized within ten days. Cultures were now made at the bacteriological laboratory of the Harvard Medical School, of specimens from every nose and throat in the house, and negative reports obtained in every case but one — that of a boy who had been returned to the house from the infectious wards after two favorable bacteriological examinations.

A rule was now made that all new patients should be injected in the bath-room before being allowed to enter the wards for the first time, and the dose of antitoxin was increased to ten cubic centimetres for children ten years of age or over. I do not believe that the injections have been omitted or deferred a dozen times on account of the condition of any child's health, and I have seen but one instance in which danger was suggested by the use of the serum — a case which I shall refer to later on. The mere inspection of noses and throats was soon found to be a very slight safeguard against the introduction of the bacillus, for children with apparently normal mucous membranes were frequently discovered to have bacteriological diphtheria a day or two after entering the hospital, and emergency cases were often found to be in the same plight. One of the latter developed diphtheritic membrane; and while all this went to prove the reliability of antitoxin as an immunizing agent, bitter experience had rendered us timid, and the rules for admission were amended so far as to exclude all applicants until they had been reported as free from the bacillus, excepting cases of the greatest urgency. Meanwhile, all patients found guilty of secreting (and perhaps excreting) the Klebs-Löffler were transferred to the infectious wards, there to remain until negative reports of their cultures should set them free.

No signs of the enemy were present again in any patient whose mucous membranes were free at the start, until February 15th, when a boy who had been twice immunized — the second time on January 29th — and whose cultures had always given negative results, was found to be infected. Injections were at once given in all cases which had not been immunized within two weeks, and the rule established, to repeat them every fortnight.

[1] Read before the American Pediatric Society, Hot Springs of Virginia, May 27, 1895.

March 12th, a patient who through an oversight had been given no antitoxin since February 16th, was found to have the bacillus; but we had now become quite accustomed to its presence, and so long as it had not been detected in any child who had begun with a clean record, in a shorter space of time than seventeen days after immunization, we felt pretty safe so long as the injections were regularly given every two weeks. The next day, however, a positive culture was obtained in the case of a patient who had been injected February 28th. This eclipsed any previous records, and showed that fourteen days could not be surely counted on, so the period allowed to intervene between the immunizations was shortened to thirteen days. Meanwhile an estimate of the applicants for admission whose cultures were positive, showed that over 20 per cent. had the bacillus in their throats or noses. Emergency cases came thick and fast (emergency is an elastic term from a surgical standpoint) and when the observation rooms in which such cases were kept (pending reports from the bacteriological laboratory) happened to be full, they went into the common wards. Some of these proved to have bacteriological diphtheria, and one developed clinical evidence of the disease. There is not the slightest doubt that many patients in the house were thoroughly exposed, aside from the infection present in the building itself. Our contagious wards were now full, and the question of continuing to admit patients, and allowing such patients as might present bacteriological but no clinical evidence of the disease to remain in the open wards (or even to be transfered to them from the contagious quarters) was discussed. I thought at the time, and I still think that this could have been done with safety so long as immunization was regularly kept up. There had been but few days during the past month when the wards had been free from the bacillus either alone, or as a companion to membrane. A large majority of the staff agreed with me; but we refrained from pursuing a course which might injure the hospital by giving rise to distorted rumors.

So a vote was passed to the effect that every patient with the bacillus present, whose culture had not been tested by injecting a guinea-pig, should remain in the infectious wards, and admissions to the hospital suspended; for if measles or scarlet fever broke out among the children we should find ourselves badly crippled. Everything considered, I am sure that the staff is entitled to the credit of showing a considerable degree of deference to the somewhat freely expressed opinion of outsiders, who know but little about the actual situation. Fortunately the bacilliary tide began to ebb at this time, and we were spared the guinea-pig test, which often consumes a fortnight's time, and may lead to no really definite conclusion in the end.

Things now went along smoothly until March 25th, when an unmistakable break-down occurred in a child who had been antitoxined on the 10th, and again (by mistake) on the 16th. Negative cultures had been obtained on the 4th and 19th, but the girl had perfectly well-marked clinical diphtheria, and the diagnosis was confirmed by bacteriological examination. Within twenty-four hours bacilli, but no membrane, were found in two other cases which had been immunized on the 16th. But in spite of these exceptional cases (occurring as they did nine and ten days respectively after being injected) it was not thought best to shorten the interval between the immunizations, as I had good reasons for doubting the reliability of the serum used in these instances. April 4th, but two patients remained in the infectious wards, and as the service was becoming less active we no longer made surgical patients wait for bacteriological examinations before admitting them to the house. Two or three proved to be infected (inasmuch as the bacillus was present in their throats and such cases must be regarded as infectious no matter how robust their general health may be until their cultures have been proved benign by the guinea-pig test) and were allowed to remain in an open ward; the epidemic was on the wane, the infectious wards were quite empty, and we did not care to reopen them. In short, we did now what we might have safely done weeks before, and for better reasons. No bad results followed this course, and I am sorry it was not pursued at an earlier date. Children who had the bacillus but no symptoms requiring special care, might far better have remained in the house and passed their time in being cured of the affections they entered the hospital for originally, than have gone to the infectious wards and increased the work of the staff and nurses. Certainly nobody who is familiar with the conduct of children in hospitals — their close intimacies, the manner in which toys are used by all — can believe that the risk of infection would have been materially increased over what already existed if they had been allowed to remain.

An analysis of all the cases, shows that of a total of 438 immunizing injections given between January 13th and May 13th, 109 were of Gibier's serum; 104 of Behring's; 74 of Aronson's; and 151 of the antitoxin prepared by the Massachusetts State Board of Health. The largest number administered to one child was seven. Many of these patients were under treatment for acute diseases at the time of injection: croupous and broncho-pneumonia, grippe, tubercular peritonitis, empyema, typhoid, or such surgical troubles as naturally find their way to a children's hospital. No special symptoms were noted as produced by the serum with regard to the existent diseases at the time of injection excepting in one or two suppurative hip cases, in which there was a temporary improvement in the appetite and general condition. In a few cases of desperate illness the antitoxin was omitted, or postponed until the patient's condition improved; but as a rule, all fared alike. I have failed to observe any dangerous symptoms arise from immunization excepting one case—a boy, aged two, with leucocytosis and a large spleen, upon whom two preceding doses had produced no ill effect, had a temperature of 105.4° F. and considerable edema about the point of injection (given in the abdominal wall in this instance), and certainly appeared very sick. Cold baths and brandy soon made him better, however, much to my relief. Of course, the results of an analysis of our cases are by no means claimed to be conclusive. They are, however, sufficiently well based to permit their being regarded as suggestive. As a rule, the temperature goes up less than a degree a few hours after immunization, and in 75 per cent. of all cases this is all there is to be seen. Erythema around the point of injection occurred in 23 cases. In four it was very extensive, and closely resembled erysipelas — in one instance the child was isolated. The average duration of this symptom is three days; in some cases it lasts only a few hours. It usually appears on the first day after antitoxin, and

never later than the eighth. Urticaria occurred 28 times. The frequency, severity, time of appearance, and duration of this symptom varies greatly with the brand of serum employed. That of Gibier (Pasteur Institute of New York), produced it in 22 per cent. on the (average) seventh day, and lasting (an average of) two and a half days. Behring's caused it in but one case, appearing on the eighth day and lasting three days. Aronson's gave rise to no urticaria. The serum of the Massachusetts State Board of Health produced in about four and a half per cent. an eruption, appearing on the (average) second day, and disappearing in a day and a half. This serum at present very rarely gives rise to anything cutaneous, although at first urticaria was of pretty common occurrence. In three instances the erythema was papular, and very closely resembled measles. In two instances an eruption like scarlet fever was present. Occasionally a child whose skin remained clear after the first or second or third immunization, broke out with an erythema, or an urticaria after a subsequent injection. The same brand of serum may produce an urticaria, an erythema, or no skin eruption whatever in the same subject, as proved in more than one instance where repeated injections were given. Pain (at times intense) was noticed about the point of injection in sixteen; edema in seven; axillary or inguinal glands enlarged in three; general malaise (in one instance a mild delirium) in three. Pain in the articulations in less than one per cent. Nausea, with or without vomiting, in two per cent. Diarrhea (ephemeral) in less than three per cent. Increased frequency of micturition was noted in rare instances. The urine of 82 children was very carefully examined with reference to the effects of antitoxin on the kidneys, and the result of 540 examinations may be briefly stated as follows: In 20 per cent. no change whatever was detected. Of the remaining 80 per cent., those which had been free from albumin previous to immunization, showed a slight trace — in most instances the slightest possible amount, which could be detected only when placed in front of a dark back-ground. This within twenty-four or forty-eight hours after injection. In cases where albumin had been present before the use of antitoxin, there was a very slight increase of the amount. In no case was there any diminution in the amount passed, or any evidence of failure to eliminate properly. Repeated microscopic examinations revealed nothing more than an insignificant amount of renal irritation in any case; and when the albuminuria was produced by antitoxin, it disappeared in a period varying from two or three days to a fortnight.

With regard to the protection afforded by antitoxin, our experience has tended to show that the serum, when fresh, can be relied upon to immunize against anything resembling clinical diphtheria thirteen days, and very probably for a longer space of time. Moreover, in no instance was the bacillus detected in the nose or throat of any child who started with a clear record in a shorter space of time than that just mentioned. This last point (if eventually established) is of practical importance as showing that an immunized child is not only safe from diphtheria, but is also safe as concerns others for a definite length of time. I am by no means sure that daily examinations of cultures from every case might not have shown the fallacy of the theory; but the fact that quite numerous examinations were made, with the results described, certainly deserves mention. In the cases which broke down in eight and ten days after being immunized, the serum used had become decomposed. The color differed from that usually presented, but so slightly at the time of injection that it was used without hesitation. Forty-eight hours later it was of the color of milk.

Regarding the use of antitoxin for curative purposes, our experience, while decidedly favorable, has been too slight to warrant the expression of an opinion. Statistics at the Children's Hospital, if made up from the standpoint that the mere presence of the bacillus in the nose or throat constitutes diphtheria, would justify the extremely favorable and entirely fallacious statement, that our mortality has been less than three per cent. For of 34 patients who have been inmates of the infectious wards, only one died; and all of them received antitoxin — the great majority, however, never more than one small injection, for the purpose of immunization upon entrance, before the reports of their cultures had been obtained. Assuredly one might as well claim, that the existence of the pneumococcus in the saliva implies the presence of pneumonia, as to call all cases which have the Klebs-Löffler bacillus, diphtheria. Equally absurd is it to treat such cases with antitoxin, unless some clinical evidence of the disease is present. I have convinced myself that full doses of the serum has no influence on the mere presence of the bacillus after it has once obtained a foothold. The more ardent supporters of the treatment, will greatly endanger its reputation if they present claims based on statistics such as I have described. On the other hand, I do not doubt that equally enthusiastic opponents of antitoxin will bring forward abundant proof that it does no good whatever. I can well remember something of the kind being done in the case of salicylic acid, and kindred preparations, by conscientious men, who showed by apparently flawless statistics, that cases of acute rheumatism did better under the old treatment by alkalies; but the remedies whose merits they denied, have stood the test of time wonderfully well, and if taken away from us to-day would be badly missed.

Results of the serum treatment, if they are to inspire confidence, must be based upon such cases as are clinically diphtheria, and the diagnosis of which is confirmed by bacteriological examination. Care must be taken to exclude all cases in which a membrane, which to all appearances is identical with that of diphtheria is present, but which is due to the work of other germs. Instances of this sort are far commoner than was formerly suspected — I have observed four (two at the hospital and two in private practice) during the past six months.

In the present state of our knowledge, the Klebs-Löffler bacillus may be said to resemble an idle but extremely competent workman, who under certain unknown conditions may suddenly accomplish a wonderful task. He gives no warning of his intentions, and does not trouble himself to put on working clothes — at least none of a sort which can be recognized under the microscope.

Even such cultures as have every appearance of virulence may prove to be benign when tested, and when they look doubtful may promptly kill the injected guinea-pig. Every active diphtheritic germ is undoubtedly a Klebs-Löffler, but every Klebs-Löffler is by no means an active diphtheritic germ. On the

contrary, it does not, as a rule, harm those who afford it shelter. Of 34 patients who have passed through our infectious wards at the Children's Hospital during the past six months, but seven have had anything resembling what used to be called diphtheria before the birth of the bacillus was announced in the journals, and two of these cases were caused by other germs. But I cannot doubt, that the bacteriologists who have given us so much of inestimable value during the past few years, will before long extricate us from the dilemma caused by our uncertainty of the sanitary status of a person who has only bacteriological diphtheria. Until this knowledge is vouchsafed us, we must continue to regard such a one as a dangerously indefinite quantity; and in an institution like the Children's Hospital, this implies the absolute rejection of a large number of cases, and the disaffection of many others, who cannot be admitted until reports of their cultures have been obtained; for after such alterations shall have been effected during the coming summer as will render the building safe, and immunization is no longer a routine, no case can be permitted to enter which is open to suspicion of harboring the bacillus.

Another thing: Are we justified in admitting a child on the strength of a single negative report? As to the reliability of these reports, there are defects in the present method of obtaining specimens for bacteriological examination (and very probably in any possible method) which render occasional errors unavoidable. I do not wish to be understood as questioning the skill and accuracy of the gentleman at the bacteriological laboratory who make the cultures. If there are no bacilli in the specimens handed in to them, we cannot reasonably expect positive reports; and I merely state an obvious fact when I say, that the wires used for obtaining specimens, may be justly compared with a hook which is lowered into a dark pool in the hope of jigging fish. If the fish are plenty, there is a strong probability of success — if scarce, the chances are fewer. And whether they are plenty or scarce, the element of luck must be taken into account. Of course, if membrane is present and the wire pushed under the outer edge, there is but little probability of failure.

To arrive at an estimate of the frequency of errors due to the uncertainty of bringing away bacilli on the wire when they are present, I have taken the bacteriological reports concerning patients in the infectious wards, from whom specimens were examined at short intervals, and called such negative reports erroneous as are immediately preceded and followed by positive cultures. Of 253 reports 26 were incorrect — a little more than 10 per cent. Under these circumstances I think two negative reports of specimens taken twenty-four hours apart should be obtained — nor can we then feel absolutely safe.

Some of the patients in the infectious wards were very slow in getting rid of their bacilli. One case was lodged and fed at the expense of the hospital for two months, for the sole reason that we failed to obtain two negative reports in succession. He was in robust health, and a particularly noisy and troublesome boy. Finally he was discharged, much to the relief of all concerned.

Various means were tried in cases of that kind to hasten the departure of the bacillus. Good results were finally obtained by atomizing strained lemon juice into the noses and throats six times per diem. Cases which had resisted equally frequent applications of peroxide of hydrogen yielded promptly to this treatment. It is not a pleasant procedure. Children do not like it — but neither does the bacillus. At first it occasions considerable irritation about the nostrils and upper lip; but tolerance is soon established, and the end justifies the means. Since finishing this paper (May 13th) a sufficient number of injections of antitoxin have been given at the Children's Hospital, to bring the total close to five hundred, and with no fresh evidence to alter the views which I have expressed. I think that the fact that we have not had a single abscess resulting from so many injections, speaks well for the careful attention to cleanliness on the part of the internes of the hospital, Messrs. Hall, Wylie and Washburn, whose good and painstaking work deserves mention.

In conclusion, I wish to express my thanks to Drs. Ernst and McCollom for the unvarying courtesy with which they have borne the severe strain upon their patience which the many hundred cultures made at my request must have caused them.

## INTRAVENOUS, MEDICATED INJECTIONS ACCORDING TO PROF. GUIDO BACCELLI'S METHOD.[1]

BY RICH. HOGNER, M.D., BOSTON.

AT the Medical Congress held at Rome in 1894, Professor Baccelli delivered a lecture[2] on intravenous — or as it is also called, endovenous — corrosive-sublimate injections, about which, among other things, he says that the method has been adopted widely in Italy, and that all who have had experience with it agree that it is "harmless, rapid and searching in its effects."

After Baccelli had reminded his hearers that it was he who "originated the idea of injecting medicament directly into the veins for malaria," he continued:

"Professor Nothnagel considers intravenous injections especially needless, inasmuch as one can treat subcutaneously with the same effect and without inconvenience, but Professor Nothnagel speaks without having had experimental acquaintance with the subject, while the tests up to this time, with their results, plainly show his *a priori* views."

Baccelli began with intravenous, medicated injections on animals; and when he found them not only harmless but to be "the most energetic, safe and rapidly working therapeutic agent against malignant diseases," he began in his clinic to apply them, in doubtful cases, to human beings, and with "fine results"; a success, moreover, which has been confirmed in the Italian clinics and in those of private practitioners in Italy. As there are only a very few reports of the use of the method in other lands, the following trial thereof may justly be described.

The intravenous medicated injections have been used by Baccelli, so far, only for malaria and syphilis — neutral solutions (ten per cent.) of quinine hydrochlorate, also corrosive-sublimate solutions (one to two per cent.); but Baccelli believes that the breach is opened, and that his method will spread widely, so much the more, as besides what has already been said

[1] Read before the Clinical Section of the Suffolk District Medical Society, March 20, 1895.

[2] Guido Baccelli: Ueber intravenöse Injectionen mit Sublimat. Berliner klin. Woch., 26 März, 1894.

about the method, "it should not be ignored," he says, "that all pharmaceutic remedies finally are distributed — no matter how first applied — only by means of the circulating fluid in the body's organs."[3]

In favor of the intravenous corrosive-sublimate treatment for syphilis, may be mentioned:

(1) The small quantity of Hg used.

(2) The possibility of rapidly fighting the syphilitic symptoms which point to direct blood-poisoning.

(3) The prompt and searching effect on the walls of the vessels, which are the specially favorite place for syphilitic changes.

The technique of the method consists in choosing a vein, in the arm-pit fold, the hand, the leg or the foot — wherever, in fact, it is desired to make the injection. Bind the limb, centripetally, with a convenient bandage or rubber band, so that the vein will swell as much as possible. Make the fingers and the skin aseptic as for an operation, also inject, with a convenient syringe, the medicament solution chosen. From the beginning to the end, aseptic! "If the injection is made," says Baccelli, "after this manner, then no local phenomenon will appear." If one has injected corrosive-sublimate solution, the patient will get the taste of mercury in the mouth after a few seconds or minutes, and the salivation will result from a small quantity after five or six minutes.

The corrosive-sublimate solution used, is:

| | | |
|---|---|---|
| ℞ | Hydrarg. chlor. corros. . . . . | 1.00 or 2.00 |
| | Sodii chloridi . . . . . | 3.00 or 6.00 |
| | Aq. destill. . . . . | 1,000.00 |

Of the weaker solution (one per cent.) one cubic centimetre, or one milligramme corrosive sublimate, is first injected; and then the doses are increased in strength — two, three, four, up to eight milligrammes corrosive sublimate at a time and in a day. With four milligrammes the strong solution is used, so as to avoid injecting too great a quantity of fluid. Of the stronger solution (two per cent.) one cubic centimetre contains two milligrammes corrosive sublimate, wherefore eight milligrammes — *dosis maxima!* — contain four cubic centimetres of the two-per-cent. solution.

Baccelli used immediately, in urgent cases, four to five milligrammes in his corrosive-sublimate treatment. With my experiments bandages were sometimes used after the injection, sometimes not; however, it is better always to use a little bandage afterwards.

The sign that the lumen of the vein has been reached, is, according to Baccelli, the cessation of pain from the injection and the absence of subcutaneous swelling.

A perivascular corrosive-sublimate injection is, moreover, so painful to the patient, that one would not willingly undertake so severe a treatment.

I have just used Baccelli's intravenous corrosive-sublimate injections in the case of a woman living in East Boston. She is twenty-seven years old, thin but rather strong, and the wife of a working-man. She has been married seven years; has had two children, who are six and four years old; also has had a miscarriage at the seventh month, in September, 1893, as she said, without apparent cause. In the beginning of pregnancy, brown "rosy spots" broke out all over her body, but disappeared in time, before the miscarriage, after which the body was said to be "white" again. At the time of delivery she was attended by an "old woman." The husband and the rest of the family showed no signs of syphilis. A month after the miscarriage another eruption appeared on the forearms, face, neck and legs — the chest was comparatively free — in size from a half-dime to a twenty-five-cent piece, in color reddish-brown on the skin, which here and there became confluent in still larger pigmentary spots, varying greatly in form and located on both the flexor and extensor sides of the arms and legs. The skin was not scaly, was without increased secretion, and did not itch. No other disease symptoms, except some swollen glands, were apparent. No sore on the genitalia or anus. Two months later a dimness appeared before the eyes. On examination, on the 24th of January, 1894, besides the above-named symptoms, numerous synechiæ on the capsula lentis. Ordered hydrargyri iodidum rubrum .01+ gm., and potassi iodidum .50 gm., three times a day; and after the patient had continued a while with this without the eruption growing paler, ordered daily inunctions of two grammes Hg in four grammes lanoline per day. The iritis had besides been treated with atropia and tepid wet dressings.

The patient was not seen for several months, not till the 15th of June, when she said she had used 60 packages (120 grammes) Hg, during several interruptions, necessary for mercurial stomatitis. The condition on the above-named day was as follows: Almost unbearable pains in the legs, especially at night. The parts of the body before named were covered for the most part with irregular, more or less pale, brownish pigment spots. On the forehead, under the roots of the hair, and under the outer corner of the right eye, besides an increased brownish-red, somewhat scaly, papulous eruption; also on the outer side of the right forearm. On the outer side of the right lower leg was found a somewhat excavated granulated sore the size of a half-dime, and on the front of the left leg a similar one about the size of a fifty-cent piece, also, immediately under it, a sore of the size of a cent, resembling an ulcer, which had undergone a deep scraping a few days before. There was a greater or less reaction of all sores, but they showed slight tendency to heal. Aside from a slight stomatitis and a lack of appetite, there was nothing further noticeable in the patient's condition.

As the case in question showed great obstinancy in yielding to the anti-syphilitic treatment so far employed, then, following Baccelli's advice, to "use the intravenous injections of corrosive sublimate in such forms of syphilis as showed themselves passive towards the usual specific treatment," and gaining the patient's consent, we decided to begin with injecting corrosive sublimate directly into the blood and ambulatorially.

June 15th. After making my hands aseptic with lysol solution, the patient's left elbow (upon which a vein shone forth through the skin) was cleansed with lysol, then with corrosive-sublimate solution (two per cent). An elastic band, cleansed in lysol, and as thick as a quill, was placed so tightly around the arm that the cubital veins swelled to their greatest extent. A common Pravatz syringe was then cleansed in lysol solution and in Baccelli's weaker corrosive-sublimate solution, very carefully; after which the syringe (one cubic centimetre) was filled with the same solution (one milligramme corrosive sublimate). The needle was then inserted in the vein, and a few drops of blood escaped around the needle; then the liquid was in-

[3] Not "all," not the insoluble ones; for example, bismuth for gastritis, etc.

jected very slowly but continuously. After one-half of it had been injected, the patient complained of numbness in the arm. The band was removed, after which the numbness disappeared and the rest of the liquid in the syringe was injected. No attendant subcutaneous swelling appeared. The injection was painless. The liquid injected was at summer heat (+ 30° to + 32° C.). No taste of mercury in the mouth; no salivation. When the needle was withdrawn, another drop of blood followed. No bandage was placed on the arm. It may be added the patient's subcutaneous veins were unusually small and were with difficulty caused to swell.

June 16th. No reaction from yesterday's treatment. After the same preparation as then, an injection of three cubic centimetres (of three milligrammes corrosive sublimate) was made in a right cubital vein, with a ten-cubic-centimetre graduated syringe, armed with a fine morphine needle. The needle was not withdrawn immediately after the injection, but was left in the vein some seconds, while the patient was questioned as to how she felt; for the intention was, if possible, to inject a few more milligrammes of sublimate. In the mean time, a bloody liquid forced its way into the syringe. Consequently, the injection was not continued, but the needle withdrawn.

June 18th. Injected three milligrammes corrosive sublimate. In all respects the same as yesterday, including the penetration of blood into the syringe at the close of the injection.

June 19th. Injected four cubic centimetres of the weaker solution, that is, four milligrammes corrosive sublimate. As soon as two cubic centimetres had been injected a little pause was made, in order to change the direction of the needle, upon which blood forced itself into the syringe; it seemed to coagulate into the minutest particles, not instantly, but after several seconds. Was somewhat undecided as to continuing the injection; but as in Italy the method was proven harmless, and as it seemed to me at the moment probable that the injected corrosive-sublimate liquid had, though being very slowly injected, a similar effect on the blood in the walls of the vein with which it came in contact, two cubic centimetres more corrosive-sublimate solution were injected, on which a cloudy precipitate followed, also some uncoagulated blood. The corrosive-sublimate solution entered more quickly than the blood. All of the blood from the vein (about one-third of a cubic centimetre) followed the lower wall of the syringe; and although the syringe was held inclined from below upwards, it was impossible not to inject some of it as the operation continued. There was no disadvantageous results from the injection.

June 20th. The symptoms have not altered. The pains at night are particularly severe. The dose was increased to six milligrammes corrosive sublimate, or three cubic centimetres of the strong solution. Six hours after the treatment yesterday, the patient had slight chills and perspired freely, also felt weak. (The heat has been oppressive, and nearly every one has been affected by it.) Patient slept unusually well during the night.

June 21st. Injected three cubic centimetres two-per-cent. solution, or six milligrammes corrosive sublimate. The instant the needle entered the vein, blood appeared in the syringe. Before it was visibly coagulated it was injected together with the named quantity of the solution. She had again felt pain in the legs during the night, but felt well otherwise. As the syphilis did not appear to be especially affected by this treatment, ordered simultaneously potassii iodidum, per os.

June 22d. So far the injections had been made into different veins in the elbow folds, and twice in precisely the same spot with intervals of times between. Injected now four cubic centimetres strong solution (eight milligrammes corrosive sublimate) into a vein in the right wrist, volar side. The needle appeared to be in the vein, yet, though the syringe was held inclined from below upwards, and the solution was not instantly injected, no blood was seen, as happened so often before, to enter the syringe. Accompanying the injection was a swelling alongside the vein, for about two centimetres, and the patient complained of pain. As it was evident the needle had come perivascularly, the injection was suspended after half a cubic centimetre, (one milligramme corrosive sublimate) had been used.

June 23d. After yesterday's treatment an appreciable swelling appeared on and around the spot pierced, also the skin was "black and blue." Injected to-day nine milligrammes corrosive sublimate in a vein in the left wrist. No inconvenience from it, more than a "queer taste" in the mouth about half an hour later, which lasted several hours.

June 25th. Complained of pain in the right elbow, where one of the veins, which had received two injections into almost the same point, felt rather hard for the distance of one centimetre with the ligature around the upper arm, scarcely any swelling of the vessels where a former injection was made is noticeable. An unused vein on the back of the left hand, swelled enough, however, and here an injection of five cubic centimetres strong solution (ten milligrammes or one centigramme corrosive sublimate) was made. Stronger metallic taste in the mouth than formerly; otherwise about the same as yesterday.

June 26th. No tenderness in the teeth. The gums redder, without being swelled, however. No diarrhea. General condition good. Syphilitic symptoms show a good tendency to disappear, although one cannot call the condition satisfactory in consideration of the strong treatment. The patient, who has been for some time taking one and a half grammes potassii iodidum per day, has to increase the dose to two grammes per day.

June 27th. Injection of five cubic centimetres (one centigramme corrosive sublimate) in the right foot's dorsal vein. Some drops of the fluid came, in the beginning, perivascular.

June 28th. Patient says her foot was very painful after treatment yesterday. Foot was very swollen and red on her arrival home. She felt later creeping and cramp in her body, and wanted to sink down every time she rose; had nausea; felt numbness in her body; had something like trembling in her face, hands and legs. Teeth tender (but not loose). Has stomatitis to-day; feels weak, but only the symptoms of the foot and mouth — of those already named — remain, the former of which is red, swollen on the back and tender up to the tibio-tarsal joint and above, precisely as during an acute, mild phlegmon. Ordered no corrosive-sublimate injection, no potassii iodidum. Lying still. Lead water compress.

June 29th. All symptoms decreasing. Patient takes potassii iodidum again, but in small doses, because she appears not to tolerate large ones.

July 6th. Foot no longer red; some swelling and tenderness in the tibio-tarsal joint. The pain in the left leg, which disappeared a while, has returned since. The potassii iodidum mixture was exhausted four days ago. The old papulous eruption seems to have disappeared, but new eruptions appear to be coming. Ordered hydrargyri iodidum rubrum and potassii iodidum in pills.

July 16th. Has not taken any pills for three days, because diarrhea set in. The more recent syphilids are worse than two weeks ago, and, besides, small balls and holes appear in the right leg. The right foot is perfectly free from tenderness or swelling. Began again with intravenous corrosive-sublimate injections, without accompanying iodine treatment. Injected five milligrammes corrosive sublimate into the left-arm fold. Immediately following the insertion of the needle, blood appeared in the syringe. By holding the instrument much inclined downwards, the solution (which was at once injected and hindered the entrance of more blood to the syringe) could be injected without the blood — which kept to the lower side of the syringe — entering the vein again; antiseptic bandage afterwards.

July 17th. On the middle of the left forearm injected four cubic centimetres, strong solution (eight milligrammes corrosive sublimate), of which nearly half came perivascularly; followed by swelling. Massage; bandage.

July 18th. Upper half of the left forearm swollen, red and with increasing local temperature. The facial papulæ were cauterized with solution corrosive sublimate in alcohol (one to five); besides this no other treatment than cold compresses on the forearm.

July 21st. Patient, who has had to remain for three days on account of the swollen arm, and so did not have any syphilitic treatment, was found better in the left arm, but new eruptions had appeared on the right cubital region. After putting the band round the right upper arm, a vein on the middle of the under arm appeared somewhat swelled. On attempting to penetrate the vessel, a little blood entered the syringe through the needle; but when the liquid was injected, perivascular swelling appeared, for which reason the needle was instantly withdrawn and a new attempt was made with a vein on the back of the left hand, with the result that five cubic centimetres (ten milligrammes, that is one centigramme corrosive sublimate), could be injected without pain and which expanded the vessel nearest above the needle to considerable extent, but which disappeared after some seconds. The swelling, therefore, was not perivascular or subcutaneous, but depended on the injecting fluid not being carried away quickly enough, hindered by the band which strangled the upper arm and which was not removed till the injection was entirely finished. Bandage applied. Patient said afterwards that she got the metal taste in her mouth immediately after leaving office. After a few hours, headache and diarrhea, which latter continued the following day a little. After coming home (making it an hour after the treatment) the patient noticed that her *right* forearm was swollen, but no pain was felt. The left hand and arm seemed to be normal.

July 23d. The right arm very slightly swollen, and several ecchymoses in the skin where the band sat, also for some distance down.

As all veins suitable for injection seemed to have disappeared the intravenous treatment had to be given up entirely. Some improvement, though very slight, has taken place in all respects. Ordered potassii iodidum.

August 19th. The sore on the left leg is half healed, but new eruptions of small gummata have appeared on the right leg. Ordered syrup Giberti in increasing doses, as large doses as possible.

September 3d. Patient improving very little.

It cannot be denied that Baccelli's treatment of syphilis with intravenous corrosive-sublimate injections showed itself harmless, even in this case. The maximum dose should not exceed eight milligrammes.

The patient received, however, one centigramme three times; twice without any injury at all, but once when one centigramme corrosive sublimate was injected on two following days, the latter injection of one centigramme was accompanied with alarming symptoms of mercurial poisoning. The symptoms, however, decreasing very soon.

Several times, in spite of all attentions, the injections became perivascular instead of intravascular, with the consequent pain and swelling, which sometimes compelled the suspension of the treatment; but finally the marvellous fact appeared that the veins became smaller and at last were not large enough or available for injections, which perhaps shows, as Baccelli says, "the prompt and searching effect on walls of the blood-vessels," although in this case almost too strong.

In the case before us, the intravenous treatment did not act so "quickly" or "powerfully," but the patient seemed to be able to bear very much, almost one centigramme corrosive sublimate intravenously. She did not get salivation or stomatitis after nine milligrammes, only a taste of mineral in the mouth, which quickly disappeared, which, however, is so much the more remarkable, as she got diarrhea after comparatively small doses of mercury and potassii iodidum per os. We have clearly a case of very rebellous syphilis, rather refractory against mercury; but the intravenous treatment showed itself, however, to be of use, and, finally, although slowly, caused a change in the disease for the better.

There is do doubt but the intravenous, medicated treatment of diseases is a step forward, and to be resorted to in some cases, when other methods fail.

Dr. Kezmarsky [4] has recently published two cases of venous sepsis, treated with intravenous injections of corrosive sublimate, one to eight milligrammes, *pro dosi*, and, as it seems, with good results.

Last November I had a similar case:

Mrs. A., forty years of age, delivered by a midwife from her fifth child, took ill the following day with fever and very great pains in the *articulationes ileo-sacrales*. She was given a pelvic girth and (per os) some phosphorus, and was getting along better every day, when on the sixth day she got chills and (suddenly) increase of fever. When I saw her at this time she had all the symptoms of venous sepsis, with almost no local symptoms by palpation and touch of the pelvic organs. Lochia were normal or perhaps a little fetid. The tenderness in the joints was gone. The condition of the patient was half soporous, and so bad that I found it hopeless and too dangerous to curette. She was given an intra-uterine washing of lysol solution, one per cent., and an intravenous in-

[4] Centralbl. f. Gynäk., 1894, No. 33.

jection of corrosive sublimate (three milligrammes *à la Baccelli*).[5]

The seventh day of the disease no washing, because the lochia were not fetid at all, intravenous injection of five milligrammes corrosive sublimate; the eighth and ninth day of eight milligrammes. The eleventh and twelfth days diarrhea. No corrosive-sublimate injections; quinine, ergot, opium. The thirteenth day eight milligrammes corrosive sublimate intravenously, and an intra-uterine washing, because of a little fetid lochia. During all these days the temperature was very irregular, from + 38.5° to + 40.5° C. Pulse 124–130; very weak. The patient sometimes had chills. She was weaker for every day, but somewhat less soporous.

The fifteenth day, no injection. The temperature at 6 P. M. + 38.6° C. Following morning + 40.6° C. When I could not find any especially good result from the intravenous corrosive-sublimate injections, I omitted them, especially as they could be made only in the dorsal veins of the hands, which swelled in the case more than the cubital veins, and it was very difficult always to prick on the same vessels.

As the very poor patient had no nurse and no help in her home, she was on the seventeenth day sent, although much weakened, to the hospital, where she died after four days. The autopsy gave "grayish" endometrium with numerous colonies of staphylococcus and some other bacilli therein and in the liver, the blood, etc., also in the infarctions of the kidneys, spleen and valvulæ cordis.

The result might perhaps have been different if the intravenous corrosive-sublimate injections had been given earlier and from the beginning stronger. It cannot be denied, however, that the idea may in some degree be a rational one, that to sterilize the blood, or rather to somewhat weaken the bacilli as to the organism itself, is more easily to overcome the infection; and it seems to me that the scraping and antisepsis of the endometrium combined with intravenous corrosive-sublimate injections, perhaps may at present be the most rational treatment of puerperal fever; so much the more as the intravenous injections do not seem to destroy the antibacillar or antitoxic power of the blood, but only co-operate to overcome the infection.

As we know, Baccelli first employed intravenous injections, namely, neutral quinine hydrochlorate solution, for malaria, with very good results; and when cases of febris intermittens perniciosa, defying the usual treatment, are found, as talked of in our Section last spring, then this treatment may be vouchsafed for in some words.

In a letter to me, dated Rome, July 5, 1894, Baccelli gives the following formula:

| | | |
|---|---|---|
| ℞ | Quininæ hydrochloratī, . . . . . | 10.00 |
| | Sodii chloridi . . . . . | 0.75 |
| | Aquæ distillatæ . . . . . | 100.00 |

Adding that the solution should be warmed to boiling point, then cooled to + 37° or + 38° C.;[6] also be injected to the amount of five grammes of liquid (0.50 grammes quinine hydrochlorate). The injection is performed as above described.

Baccelli's closing words about the subject, "Attenzione alla antisepsi," are to be remembered.

[5] All the following injections were made without inconvenience with a solution of chamber temperature, that is, of about + 18° C.

[6] A little under this temperature the quinine is mainly precipitated.

## THE CAUSES OF SUDDEN DEATH.[1]

BY THOS. M. DURELL, M.D.,
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IN the discharge of his official duties the medical examiner is called upon to view the bodies and to examine into the cause and manner of the death of such persons as are supposed to have come to their death by violence. A large proportion of the number of cases that are investigated each year by the examiners are cases in which a simple view of the body is made, without autopsy. This is an unfortunate state of affairs; still it is the law, and we must abide by it. On this account the matter of post-mortem diagnosis is of vital importance to us; and it is for this reason that I have presumed to bring to the notice of this Society a matter which has been discussed and written upon until one may fairly ask, What new can be said upon it? For all this, one can never be called upon to view a dead body without being confronted by the same difficulties that have annoyed the medical expert for all time.

The saying of Dr. Holmes upon the subject of phrenology is often suggested to me in this connection; you will remember that he said "that one could tell about as much about what was inside a skull by feeling of the outside, as one could by feeling of the outside of a bottle without smelling of the cork."

We have all felt for a long time the almost uselessness of views without autopsy; but under the existing laws we are obliged to do the best we can; and I think that experience has shown that the examiners have become wonderfully expert in this direction with the limited means at their disposal.

The language of the statutes is very wise, and has suggested a means of solving a part, at least, of this difficulty. I refer to that part which I have already quoted, namely, "to examine into the cause and manner of the death."

A careful inquiry into the manner of the death is of the utmost importance; for this manner of death is the real clinical history of the case, if I may be permitted to use that term as applied to a death history. By these means we have been enabled to learn some few things, and I trust that I may in this paper add my mite to the grand total.

It is a popular belief, not only among the laity but among the profession as well, that the cause of sudden death is either a disease of the heart or an apoplexy; but we certainly know now that there are very many other causes than these, and we also know that persons do not die very suddenly from a cerebral hemorrhage, and that in these cases there is always a period, longer or shorter, of unconsciousness with stertorous breathing.

The causes of sudden death as given by Tidy, are as follows:

(1) Disease of the heart (especially fatty and brown degeneration), aortic regurgitation, interstitial abscess, rupture of the heart or of its valves, diseases of the pericardium.

(2) Diseases of the blood-vessels (especially aneurism and thrombosis), large effusions of blood into the brain or its membranes (cerebral and meningeal apoplexy).

(4) Pulmonary apoplexy and hematothorax.

[1] Read before the Middlesex South District Society.

(5) Sudden bursting of visceral abscesses.

(6) Ulcers of the stomach, duodenum or other parts of the alimentary canal.

(7) Extra-uterine pregnancy, peri- and retro-uterine hematocele, rupture of the uterus.

(8) Rupture of the urinary bladder or of the gall-bladder.

(9) Cholera and certain zymotic diseases.

(10) Large draughts of cold water taken when heated.

(11) Mental emotions.

(12) Accidental swallowing of foreign bodies.

In regard to death from diseases of the heart I shall say nothing except to call attention to the very able paper read before the Massachusetts Medico-Legal Society on October 4, 1893, by Dr. William T. Councilman, in which the writer calls attention to the very important part which the coronary arteries play in causing disease of the heart. He says that "the coronary arteries stand in casual relation with the pathological conditions known as fibrous or chronic myocarditis"; and further on he says "that the only condition of the heart not connected with disease of the coronary arteries which may be followed by rupture is fatty infiltration."

It is not my purpose to attempt to deal with the vast majority of the causes of sudden death; but I shall simply confine myself to some few that have been of great interest to me personally and which are not dealt with much in the text-books. One of these causes is pneumonia; and the more I look into the matter the more I am convinced that a large number of deaths occur — sudden deaths within the meaning of this paper — each year from this cause, which are not recognized as such, and in which other causes are given in the death-certificate. We all know that it is not an uncommon thing to find upon examination of the chest, of persons who do not appear very sick and who are walking about and attending to their business, large patches of consolidation at the base of the lungs. Now in a large percentage of the cases with which we have to deal we have added to this the elements of alcoholic excesses and consequent exposure to wet and cold — elements in themselves very conducive to the growth of the germ of pneumonia. These cases present a history which is very characteristic and which is as follows:

A man is brought into a police-station and locked up for drunkenness. He may or may not complain of feeling sick; but at any rate there will be nothing about his appearance that would lead one to think that he had any serious illness. In the morning he is found dead in his cell. Or again, a person may come home and complain of slight illness, go to bed, and be found dead in the morning. In either event autopsy is very liable to show that death was due to pneumonia, the probable explanation being that during the night, with the combined favorable elements of alcohol and exposure, the process spreads upwards rapidly from the base, involves the apex, shuts off the supply of air, and causes death.

The following cases illustrate this matter; the first I was permitted to see by the kindness of Dr. F. A. Harris, of Boston.

Woman had been a hard drinker, and had been to the Island. On January 9th, she came home, and complained of not feeling well. She was helped up to her room in the attic, threw herself on the bed, and, after a gasp or two, died. Upon autopsy it was found that the whole right lung was in a state of gray hepatization, and that the left lung was engorged with blood. This was all that was found.

J. K., age twenty-four years. Taken to the station-house and locked up for drunkenness. Had a slight cough, and complained of not feeling well. Was found dead in the morning. Autopsy showed complete consolidation of the left lung, with commencing trouble at the base of the right.

H. R. After a mild spree returned home; complained of feeling cold, and went to bed. Was found dead in the morning. Autopsy showed pneumonia.

Mrs. Ann F., age fifty years. Was apparently well on going to bed on the night of December 5th. Was found dead in bed in the morning. Autopsy showed complete consolidation of both apices, and an older process at the base and throughout the right lung.

Another and quite common cause of sudden death in the same class of persons is edema of the brain from alcoholic poison.

And just here let me say that it is a very unwise and unsafe thing to make a diagnosis of alcoholism without an autopsy. A case which I saw a good many years ago illustrates this. A man was found in an outhouse apparently asleep. He was roused with difficulty, and was finally taken to the police-station. Here there was a question of opinion as to whether his condition was due to alcohol or opium; at any rate he was sent home, and died. At the autopsy, there was found an occlusion of the middle menigeal artery, and no evidence of alcohol or opium. And in this connection let me say that the odor which is found in alcoholic cases is not the odor of alcohol, but resembles that of molasses.

Several cases of my own illustrates this condition of death from edema of the brain.

John C. S., age thirty-five years. July 9th was found dead in bed, with blood on his face and on the bed-clothes. His wife was in the bed with a cut on her head, and so drunk that nothing could be learned from her. Two men who were in the house the night before said that S. had been drinking heavily, but that he appeared all right at 10 P. M. Autopsy showed no evidence of violence, but showed the most marked condition of edema of the brain. The blood evidently came from the cut on the wife's head.

Edward S., age thirty-one years. Found dead in the loft of a barn. Had been drinking heavily for some time, but was apparently no drunker than usual at 10 P. M., when he was last seen. He was found dead at 6 A. M. Autopsy showed edema of the brain and no other cause of death.

J. H., age twenty-eight years. Arrested for drunkenness, and taken to police-station. Died during the night. Autopsy showed extensive edema of the brain.

P. McM., age twenty-six years. Had been drinking hard for some days. The night before his death he ate his supper at about 7 P. M., and went out. He was not seen after this. In the morning he was found dead on the floor of the front entry. Autopsy showed edema of the brain, and nothing else.

The following cases show several rather unusual causes of sudden death.

Ellen D., age forty-seven years. Had been as well as usual up to April 23d. On this day, while at work, she was taken with hemorrhage from the mouth, and died in a few minutes. The amount of blood lost was enormous. Upon autopsy the stomach was found full of blood, and the cause of this was found to be cirrhosis of the liver.

John M., age forty years. On his way home from a drinking-bout he fell down and vomited into a slight depression in the ground, and was literally drowned in his own vomit.

Chas. D., age twenty years. Came out on a horse-car from Boston between eleven and twelve o'clock. Had evidently been drinking, but could walk unaided. After he left the car he was seen to lean against a fence and then fall to the ground. When he was found he was dead. Autopsy showed the presence of a large piece of meat in the trachea. He had evidently attempted to vomit, and in the process this piece of meat had lodged in the trachea.

Andrew D., aged fifty years. Had been drinking, and became unconscious. His wife, who had also been drinking, attempted to bring him to consciousness by placing a cloth wet in strong ammonia-water over his mouth and nose. He died from the effects of the ammonia; and upon autopsy his larynx and trachea looked as if the mucous membrane had been scarified.

P. V., aged fifty years. Had been well up to Saturday night. In a quarrel with his wife she is said to have thrown a shoe at him which struck him in the abdomen. No attention was paid to the matter, but on the following night he died suddenly. Autopsy showed no marks of violence externally. Then was found a single ulceration of the descending colon, with perforation; fecal matter in the cavity of the abdomen; peritoneum not opaque but with injection of the vessels.

L. B., aged fifty years. History, during previous ten years, of abdominal pain. After a severe attack of pain he suddenly died. Autopsy showed perforation of gall-bladder, and escape of numerous stones into the peritoneal cavity.

G. R., age twenty eight years. Robust health. Was being treated for a common sore throat; suddenly he grasped his throat, ran around the room, and expired in two or three minutes. Autopsy showed absolutely nothing, with the exception of edema of the larynx and the cardiac and pulmonary appearances of asphyxia.

One might go on almost indefinitely relating curious histories of sudden death; and the one lesson that can be learned from a connection with these cases is the absolute necessity of making an autopsy in all cases of sudden death.

## Medical Progress.

### REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BOSTON.

#### GENERAL PARALYSIS.

*General Paresis a Toxine Disease.* — Bannister contributes to the April number of the *American Journal of Insanity* an excellent article on the present theories of the etiology of general paresis. Three views are held by authorities as to the relations of syphilis and paresis: (1) That syphilis has no part in the etiology of the disorder. This was the prevailing one in the early history of the affection, but statistics of late years have rather given place to another view. (2) That syphilis constitutes a predisposing cause in a large number of cases, but that paresis could not itself be considered as syphilitic. This is probably the dominant view at the present time. There is considerable range of opinion among authorities of this group as to the etiological importance of syphilis, the general opinion being that the specific infection simply prepares the way for the causal factors, mental strain, worry, traumatism, intemperance, etc., to bring on the disorder. (3) That paresis is almost invariably or always of syphilitic origin, and in its extreme form that it is in itself only a late manifestation of syphilis — an effect of the syphilitic poison.

Bannister believes, from the present trend of opinion, that the view that paresis is in almost every instance, if not in all, a result of syphilis, will become before long the prevailing one. A review of statistics and data of a dozen authorities mentioned in this article show syphilis in from 75 to 95 per cent., of cases. The fact that paresis can be indisputably caused from comparatively recent syphilis and that this is in all respects undistinguishable from the usual type is now generally recognized, which fact supports the view of the generally syphilitic character of the disease.

Other facts supporting the specific origin of paresis are those of conjugal paresis, as lately reported by Dr. Dewey and others, in which husbands seem to communicate the disease to their wives; also cases of precocious paresis in which it appears at puberty in subjects of hereditary syphilis. The relative influence of profession or occupation is also significant in this connection. Members of certain trades and professions seem to have an especial liability to paresis, as military men, railroad men, and commercial travellers. That this is not simply due to the hardship and hazards of the life they follow, is indicated by the fact that 70 per cent. of the female paretics at Kankakee were wives of men of these classes.

After successfully answering the objections offered against this view of relation of syphilis to paresis, Bannister presents his theory that paresis is the result of the action of a poison on the nervous system, and that poison is a specific toxine, needing only certain conditions to prepare the way for its activity. We have, therefore, in paresis a disease that in its typical form may unquestionably follow syphilis; that according to the last statistics is preceded in from 70 to 90 per cent. of all cases by syphilis; which seems to be communicable from husband to wife; that abounds in great cities and is rare in rural districts; that occurs early in persons of hereditary syphilis; and that is especially frequent in classes of men and women in whom syphilis is common.

*The Etiology of General Paralysis.* — Houghberg[1] has made an important contribution to the question whether general paralysis is caused by syphilis. One group of psychatric physicians, including most of the French, do not give any high importance to syphilis as a cause of paralytic dementia, laying more stress upon the abuse of alcohol, excess in venery, and injuries to the head.

Those who support this view do not take sufficient pains to make sure whether their patients really have had syphilis or not. On the other hand, the psychiatric physicians of Scandinavia and Finland hold that general paralysis is a disease entirely caused by an earlier infection of syphilis. The German alienists, with Mendel, for the most part take a middle position. Although they admit that syphilis is an important factor in the production of so-called paralytic dementia, they do not consider it to be the sole cause.

Houghberg's own observations, which are, by the way, confirmatory of Bannister's opinions, were made upon 107 patients, 98 of whom were males and nine females. The details are given at length in a paper of 82 pages. He found syphilis to have been undoubtedly present in 81 per cent. of his cases, and probably so in 11.2 per cent., thus raising the proportion

[1] Allgem. Zeitschrift für Psych., 1 Band, 3 and 4 Heft.

to 92.2 per cent. This is the highest ratio recorded by any observer save Dengler, who found syphilis in 28 out of 30 cases, equal to 90 per cent.

Houghberg arrived at the following conclusions:

(1) General paralysis is a disease which especially affects the town population of Finland. It does not affect women of the better classes.

(2) The importance of syphilis as a factor in progressive paralysis seems to be very great, especially when we consider that venereal disease plays no longer part in the causation of other forms of insanity.

(3) General paralysis, which comes on most frequently between the ages of thirty and forty-five years, makes its appearance from four to five years after the syphilitic infection.

(4) The symptoms of constitutional syphilis which precede general paralysis are of a mild character.

(5) Compared with syphilis, the other assigned causes, such as hereditary predisposition, affections of the mind, abuse of alcohol, and excess in venery, play but a subordinate part.

(6) In paralytic dementia known to have followed syphilis, there were no distinctive symptoms from the cases in which syphilis was presumed to be absent. No benefit was derived from antisyphilitic treatment, nor were any alterations of a specially syphilitic character found on examination post-mortem.

*Pathogeny of General Paralysis.* — Kowalevsky [3] has a toxic theory of general paralysis: It is well known that progressive general paralysis is believed by some authorities to be the result of an interstitial and by others of a parenchymatous encepalitis. He believes both to be equally well-founded opinions, but gives as the fundamental cause of this initial alteration of the neuroglia in certain cases and of the nervous elements in the others, an intoxication of internal or external origin.

Whenever cerebral function is exaggerated, there is an internal or external toxic influence at work. The products of non-assimilation which accumulate then in the nerve cells of the brain greatly alters and finally destroys them. Then follows irritation of the neighboring vessels by this toxic material, and also proliferation of the neuroglia. At the same time he does not hold that cerebral hyperactivity or intellectual overstrain can by itself alone exercise a destructive action upon the nervous elements unless the soil be prepared by other conditions, such as hereditary syphilis or hereditary instability of the nervous system.

Toxic influences of external origin which may produce general paralysis are quite numerous. First and foremost comes the syphilitic virus, then a number of toxic substances such as alcohol, lead, mercury, etc. Each of these agents may give rise to a different clinical variety of general paralysis. General paralyses of traumatic origin have in equal degree auto-intoxication for the cause. However, we must admit that traumatism by determining a circulatory disturbance of the brain modifies cell-nutrition and makes room for the production of compounds of pathological origin, which play the rôle of veritable toxines. To some of these cases an intoxication of external origin is superadded to this auto-intoxication, when the subject of the traumatism is a syphilitic, an alcoholic, etc. In these cases the trauma, by modifying the resistance of the brain, favors the injurious action of the alcohol, the syphilitic toxine, etc.

[3] Bull. de la Soc. de Med. Ment de Belgique, 1894, No. 74.

*Syphilis of the Nervous System and General Paralysis.* Raymond [2] gives histories of three cases which he believes to throw light on the relations of general paresis to syphilis.

The first, a woman with history of syphilis, presented the symptoms of general paresis (with the exception of extravagant delusions), combined with those of tabes. Death in a series of epileptiform seizures. At the autopsy were found meningeal hemorrhage, multiple foci of cerebral edema, and syphilitic meningomyelitis of the spinal cord and brain.

In the second, in a man with history of chancre, but not of secondary symptoms, there was rapid development of symptoms, both of tabes and general paresis. At the autopsy, lesions of diffuse syphilitic meningoencephalitis, and typical posterior sclerosis of the spinal cord. Evidence of former gummata of the kidneys.

The third, a man, contracted syphilis at the age of twenty-five, and two years later developed paraplegia, which improved under specific treatment to such a degree that he was able to walk; anesthesia disappeared, but a spastic condition persisted. Two years later he had three transitory attacks of aphasia, which left no mental impairment. Death at the age of thirty-two, of pulmonary tuberculosis. At the autopsy there were found a focus of sclerotic myelitis in the upper part of the dorsal regions of the spinal cord, with ascending and descending degeneration of the ordinary character; slight arteritis obliterans of the internal carotids and the left middle meningeal artery; and a general diffused inflammatory condition of the capillaries of the cortex.

From these cases he thinks the conclusion justified, that in general paresis of syphilitic origin the lesion is primarily vascular, affecting especially the arterioles and capillaries. If, as in his last case, the lesion does not progress to such an extent as to impair the nutrition of the nerve cells, no cerebral symptoms may be noticed, but when they degenerate, symptoms of general paresis make their appearance.

He gives account of two other cases, in which subjects of syphilis have shown symptoms calculated to excite suspicion of general paresis, in one case for six, in the other for fifteen years, without progress of the malady.

### PSYCHOPATHIC FAMILIES.

From observations in this direction Perugia [4] deduces the following conclusions:

(1) The morbid types are not transmitted in psychopathic families in identical forms, but become aggravated in their transmission through the generations.

(2) Suicidal insanity only is constantly transmitted to descendants in the same form.

(3) Among the various insane types the periodical form is relatively frequent.

(4) The somatic signs of degeneracy are much more frequent than in non-hereditary lunatics, but are not aggravated proportionately to the psychic degeneracy.

(5) Very often sexual abuses, alcoholism, morphinism, and onanism are concomitant causes aggravating the heredity in these families.

(6) Bodily diseases attack the hereditarily insane with more than ordinary frequency.

[2] American Journal of Insanity, October, 1895.
[4] Rivista Sperimentale, xx, p. 68.

(7) Maternal heredity is propagated to the greater number of descendants.

(8) Psychopathic families have a fatal tendency to intermix and fuse among themselves, thus reinforcing the heredity.

(9) The psychopathic heredity affects both sexes equally.

(10) Psychopathic families, especially those in whom the heredity is bilateral, are doomed to extinction, as much by their great mortality in infancy as the sterility of their marriages.

### TREMORS IN THE INSANE.

Cristiani[5] concludes from experimental researches that in insanity generally of all the various forms we may meet with tremors, independently of other factors, due solely to the altered functions of the psychic sphere. These tremors are of the "intention" kind, ceasing during repose. They cannot be referred to any single form of mental disorder, but are solely connected with the two fundamental symptoms of excitement and depression. In excitement the tremor is vibratory, more frequent, arythmic and unequal; in depression it is undulatory, slower and more rhythmic. The tremors of the insane have a pathogenic mechanism and a semiotic significance that may be stated to depend on a functional dissolution of the nerve centre; and a weakness, incoördination and dissipation of the psychomotor energy was presumed to be absent. No benefit was derived from antisyphilitic treatment, nor were any alterations of a specially syphilitic character found on examination post-mortem.

### LOCAL ASPHYXIAS IN THE INSANE.

Kiernan[6] calls attention to the coexistence of the phenomena of Raynaud's disease with insanity, and recalls a former article of his own in which he pointed out its association with certain special types of mental disorder.

Sixteen years ago in an exceedingly brief discussion of trophoneuroses in the insane, in an article (*Journal of Mental and Nervous Disease*, April, 1878) intended to bring psychiatry into more intimate relation with neurology, he pointed out that all these phenomena occurred in hebephrenial stupor, in stuporous insanity, in melancholia attonita, in katatonia, and in certain cases of paretic dementia. He called attention to a marbling of the extremities and to a gangrenous condition of the same, as a result of paretic dementia.

In nearly all the stuporous states, whether the stupor be that of stuporous insanity or resulting from absorption in a delusion, as in paranoia or melancholia, or occurring in hebephrenia, or katatonia, or stuporous epilepsy, or paretic dementia, manifestations of the Raynaud disease type occur. The pain, due to the disease, felt by melancholic, paranoiac, hebephreniac, paretic dement or epileptic, forms the basis of a persecutory (electric, witchcraft) element in a delusion. The disease is exceedingly frequent in the stupor which sometimes succeeds cases of acute mania. In four of such cases which came under his observation in the Cook County Insane Hospital, and in ten he observed at the New York City Asylum for the Insane, the condition in the feet proceeded to gangrene, and when the patients recovered, as they all did, one or more toes were injured. In such cases, amyl nitrite by the nose, and quebracho hypodermatic injections have been of service. The condition disappears on recovery, but in certain cases may lead to blood-poisoning and secondary gangrene.

In his discussion of the mechanics of these conditions, together with that of the edemas, etc., observed in the insane, Dr. Kiernan adopts the term "vasomotor ataxia" given by Dr. Solis Cohen, as the expression of its underlying condition. Between the typical constrictive variety, as shown in Raynaud's disease, and "local asphyxias" common in the insane, which include both local relaxation and contraction, there are numberless varieties, including demographism, which in its less pronounced phases, is a very slight removal from the normal.

[5] Revista Sperimentale, xx, 1, 1894.
[6] Medical Standard, November, 1894.

## Reports of Societies.

### MASSACHUSETTS MEDICAL SOCIETY.

#### COUNCILLORS' MEETING.

THE annual meeting was held at the Medical Library, Boston, on Tuesday, June 11, 1895.

The meeting was called to order at seven P. M. by the President, DR. FRANK K. PADDOCK. One hundred and thirty-seven Councillors indicated their presence by signing the roll.

The Secretary read the names of 137 Fellows admitted since the last annual meeting, and of 36 whose deaths had been recorded.

The Treasurer, DR. FORSTER, presented his report, which was accepted, showing the receipts of the Society for the year ending April 15, 1895, with the balance on hand at the beginning of the year, to have been $13,659.96, and the expenditures $9,103.53, leaving a balance of $4,556.43.

DR. DRAPER, for the Committee on Membership and Finances, reported the names of seven Fellows whom the Committee recommended to become retired members; of four to be allowed to resign; and of thirteen to be dropped for non-payment of assessments.

The report of the Committee was adopted.

It was also voted, on recommendation of this Committee, that $2,500 of the surplus in the treasury be distributed among the district societies.

The Committee on Publications reported that DR. W. W. KEEN, of Philadelphia, has been appointed to deliver the Shattuck Lecture at the annual meeting of the Society in 1896.

The Librarian, DR. BRIGHAM, presented his report.

The Committee on Nominations reported, and the following were chosen officers of the Society for the ensuing year: President, Dr. Franklin K. Paddock, of Pittsfield; Vice-President, Dr. A. Martin Pierce, of New Bedford; Treasurer, Dr. Edward J. Forster, of Boston; Corresponding Secretary, Dr. Charles W. Swan, of Boston; Recording Secretary, Dr. Francis W. Goss, of Roxbury; Librarian, Dr. Edwin H. Brigham, of Boston. Dr. Henry P. Bowditch, of Boston, was chosen Orator for the annual meeting of the Society in 1896.

*Voted*, That the next annual meeting of the Society be held in Boston on the second Wednesday in June, 1896.

Standing Committees were appointed as follows:

Of Arrangements: Drs. A. Thorndike, A. K. Stone,

J. G. Mumford, M. V. Pierce, P. Thorndike, J. E. Goldthwait.

On Publications: Drs. B. E. Cotting, O. F. Wadsworth, G. B. Shattuck.

On Membership and Finances: Drs. F. W. Draper, J. Stedman, E. G. Cutler, L. R. Stone, A. H. Johnson.

To Procure Scientific Papers: Drs. H. P. Bowditch, F. H. Zabriskie, H. L. Burrell, S. B. Woodward, L. Wheeler, C. W. Townsend.

On Ethics and Discipline: Drs. G. E. Francis, F. C. Shattuck, C. G. Carleton, E. Cowles, J. F. A. Adams.

On Medical Diplomas: Drs. E. J. Forster, H. E. Marion, E. N. Whittier.

On State and National Legislation: Drs. F. K. Paddock, H. P. Walcott, H. P. Bowditch, T. H. Gage, S. D. Presbrey.

## ASSOCIATION OF AMERICAN PHYSICIANS.

TENTH ANNUAL MEETING, WASHINGTON, MAY 30 AND 31, 1895.

(Continued from No. 25, p. 627.)

FRIDAY. — MORNING SESSION.

### DISCUSSION ON DIPHTHERIA ANTITOXIN.

W. H. WELCH: The decision as to the efficiency of the diphtheria antitoxin is in the hands of the clinician and not of the pathologist.

The soundness of the experimental basis for the antitoxin treatment of diphtheria has been attacked, particularly by Hanseman. It is impossible to take this position unless one denies absolutely, as Hanseman does, that the Klebs-Löffler bacillus is the cause of diphtheria. His position is not justified by the facts; and all of his arguments are equally applicable to the cholera bacillus, and even to the tubercle bacillus and to most of the specific bacteria of infectious diseases. The results of these experiments upon animals are among the most striking ever performed in the laboratory. Nevertheless, we have even more striking results, probably, in the application of the tetanus antitoxin in the treatment of animals inoculated with the tetanus bacillus; although in the application of the tetanus antitoxin to the treatment of human cases the results are distinctly disappointing, so disappointing that it is doubtful whether it has a future in its present form. One cannot argue altogether from the effects upon animals as to the benefit to be derived in the human being. The reason the tetanus antitoxin is inefficacious in the human being is because doubtless the toxine of tetanus is accumulated to such an extent before recognized that the antitoxin comes in too late.

There are two prominent theories as to the mode of action of the antitoxin: the one can be called the chemical, and the other the vital theory. The chemical theory is that the antitoxin directly, in a chemical sense, neutralizes the toxine. The vital theory is that each acts through the agency of cells, that the antitoxin does not in a chemical sense neutralize the toxine but acts upon the cells so as to render them tolerant of the toxine. It seems to me that there are certain points which come out as the result of the application of the antitoxin in diphtheria which speak strongly in favor of the vital theory. One fact is that this method of treatment does not prevent the post-diphtheritic paralyses. They are apparently as common, if not more common, with the antitoxin treatment than without it. The contention of some is that a larger number of severe cases survive, and therefore there will be naturally a larger number of post-diphtheritic paralyses. These paralyses, as all evidence goes to show, depend upon the action of the toxine; and it seems to me that we have here an argument opposed to the view that the antitoxin in a direct chemical sense, is an antidote to the toxine. It speaks to my mind that they act antagonistically upon cells, and that the toxine is not kept from exerting an injurious action upon a certain class of cells. Another point to be borne in mind is the quantitative relation between the antitoxin and the toxine. In a given case of diphtheria, we have no means of knowing with any precision, how much toxine is in the blood, and therefore we do not know how much antitoxin to give. It doubtless happens often that we give an insufficient quantity. We must bear this in mind in considering discrepancies of different observers.

The question is not decided as to whether the antitoxin exerts a specific influence on the pseudo-membrane. Does it tend to become sharply demarked and roll up from the mucous membrane? Many say it does; others say not. Such discrepancies may readily be explained by the fact that in one class of cases or in one instance the dosage is correct, the amount of antitoxin given is sufficient to antagonize the toxine, while in another it is not.

Another point to be borne in mind is one that has been emphasized by Behring, namely, that the benefits of this treatment are very doubtful when the antitoxin has been introduced after the third day of the disease. That has been borne out by experiments on animals. It is very difficult indeed to obtain any positive results twenty-four hours after the injection of the diphtheria culture or the diphtheria toxine, so that we are not to expect brilliant results if the treatment is not begun early.

There are certain points which pertain to diphtheria itself, as it occurs in human beings, which are worth calling attention to. Bacteriologists at present are in favor of calling all cases of sore throat diphtheria, where the Klebs-Löffler bacillus is demonstrable. That means that a considerable number of cases which clinicians have not regarded as diphtheria are now classed by bacteriologists in this group. The diphtheria bacillus occurs in healthy throats occasionally, and in the mildest forms of anginas as well as in the more severe pseudo-membranous inflammations. Now if we see very mild cases put down as diphtheria, cases with very favorable prognosis, of course, the statistics will turn out far more favorably than otherwise. On the other hand, there are certain other cases of pseudo-membranous inflammation which the clinician cannot in any way distinguish from diphtheria and which bacteriological examinations show are due to some other micro-organism, usually to the streptococcus. Now, if no bacteriological examination is made, and these cases are included in the statistics of diphtheria, they result unfavorably to the antitoxin treatment, because the healing serum neutralizes nothing but the toxine of Löffler's bacillus. As to the proportion of these cases, which have all the appearances, clinically, of diphtheria and which are not genuine diphtheria, statistics differ. We must regard such statements as that 30 or 40 per cent. of the pseudo-membranous

anginas which the physician would regard as diphtheria are not true diphtheria, with a good deal of scepticism. In my opinion perhaps not 10 per cent. of the cases are not genuine diphtheria.

Then, of course, the diphtheria of the human being differs from experimental diphtheria. In the experimental diphtheria, we have pure uncomplicated infection due to one organism. In people we often have a complication. The human cases are often complicated with streptococcus septicemia, with pneumonia, and with great mechanical obstruction in the larynx and lower air-passages. Such cases are very unfavorable for the operation of the healing serum treatment.

As regards the statements as to the direct effect of the healing serum, they are very various; but those who favor the treatment are of the opinion that there is a direct and specific effect manifested, but in no instance are these effects different from those which may occur as the result of the natural course of the disease. Thus, you have not any such direct specific manifestation of the action of the diphtheria antitoxin which forces you to believe that something has happened which would not necessarily have happened in the course of nature. The cure is a natural cure; and why should it not be? The natural cure is a cure by antitoxin. This is only a hastening of a natural process.

What conclusion can now be drawn from the elaborate statistics which we have now before us of cases treated with the serum? There are three classes of opinions based upon these statistics. According to one class they prove nothing. According to another, they leave the matter in doubt; they speak neither for nor against the efficacy of the treatment. Others believe that they decide the question, that they cannot be interpreted otherwise than as supporting the claims of Behring. The objections urged against the statistics are, in the first place, that statistics in general prove nothing, that nothing can be demonstrated as regards the efficacy of treatment in such diseases as diphtheria simply by statistics. Then it is urged that these statistics include a very large number of light cases of the disease; that the bacteriologists, call these very mild cases of angina, diphtheria, and if they appear in any large number in the statistics, the result is much more favorable than previously when the diagnosis was purely clinical. It is said that the agitation of this subject in the public press leads the parents of children having mild sore throats to take them to places where the healing serum is administered, and the treatment is begun at an earlier stage than it would have been before this agitation.

As against this argument, it can be urged that these statistics are many of them classified so that you can tell the number of cases, for instance, with laryngeal stenosis, the condition of the throat with reference to false membrane, and so on. There are definite statements that the group of cases does not include a particularly large number of mild cases, etc. It seems to me that the results, which are recorded to the effect that when the treatment is begun before the exudate had extended to the larynx, before there are any symptoms of croup, there is no subsequent involvement of the larynx or only in a very small proportion of cases, are very significant, and furnish a very strong argument in favor of the efficacy of the treatment.

It is also urged that the epidemics of diphtheria at the present time are of a mild character, that the mortality of cases which are not subjected to this treatment is lower than in ordinary seasons. That is not in accordance with the statistics which have been collected with very great pains by a student of Bollinger, showing that in some cities, especially in Vienna, there has been a constant increase year by year of the death-rate from diphtheria.

It is contended that cases which have been treated strictly according to the directions of Behring, the treatment commenced on the first, second or third day of the disease, have continuously progressed in the spread of the membrane and the development of severe symptoms, and terminated fatally. If there were many of such cases, they would be a strong argument against the efficacy of the treatment. A comparatively small number of such observations would outweigh enormous statistical figures; but I fail to find any considerable number of such cases. There seem to be some well-authenticated cases of that character; and it seems to me possible to explain such cases, if we assume that the action of the antitoxin is not that of a chemical antidote but is upon cells. If the antitoxin acts through the agency of cells, we can understand how there may be individual difference and circumstances under which the cells would fail to respond altogether, through idiosyncrasy to the action of the treatment. Then we must consider the possibility that the serum is not of the right quality in these cases.

I think some importance is to be laid upon the clinical impression, quite aside from the statistics, of such men as Baginsky, Widerhofer and Ranke, who have had large experience. They are personally impressed by the observations at the bedside. When one reads the reports of these men, one cannot fail to see, as far as this particular point is concerned, that the impression they receive at the bedside is distinctly favorable to the treatment.

There is a new kind of argument recently introduced, based upon the result of autopsy, particularly upon the work of Ballisto (?) and Klebs (?). They have made autopsies in a number of cases treated with the healing serum. They state that of those cases of diphtheria which were treated without the healing serum, one-quarter of the autopsies presented lesions of fresh diphtheria, whereas only a hundredth of the cases treated with the healing serum gave the lesions of a fresh diphtheria, They conclude from their autopsy-material that Widerhofer (?) is perfectly correct in his conclusion as to the effect of the treatment in Vienna.

Behring was mistaken in saying that the antitoxin was as harmless as common salt solution. There is evidence that it does cause some albuminuria. The discussion of this treatment has called attention to the necessity of a careful examination in diphtheria, and it would appear that albuminuria is present in diphtheria in the vast majority of cases, according to some statistics 67 to 68 per cent., according to others 100 per cent. The arguments for the injurious effects of the blood-serum should be based upon the distinction between the subcutaneous introduction and its intravenous introduction, as Dr. Meltzer has pointed out. The skin eruptions, the affections of the joints, general prostration and cases of diarrhea, which occasionally follow the use of the serum, but which are not permanantly injurious, should lead to discretion in the use of the serum; but they do not, of course, outweigh the benefits of it.

I shall say nothing about immunization. I will simply say, in conclusion, that it seems to me there is a sound experimental basis for the use of the treatment; that the natural interpretation of the statistical results is in favor of the efficacy of the treatment; that it does undoubtedly exert a specific effect upon diphtheria; that it reduces the mortality from one-third to one-half; that when the treatment is begun during the first two days of the disease, the mortality is very low indeed; that it is the duty of the physician to make use of the treatment; that the injurious effects of the treatment are unquestionable in certain instances, but that they are not of the nature of permanent injury so far as we are at present informed, and while they should lead to care in the use of the remedy and care in the dosage, they do not outweigh the benefit which results from its specific action.

Dr. Mason: Dr. Welch has stated so clearly and fully the arguments for and against the antitoxin treatment that I will not dwell upon those points. I will simply present facts in relation to the series of cases which we have had under treatment in the diphtheria department of the Boston City Hospital, where we began to use serum December last. This department is a large one. It receives annually one-third to one-fourth of the diphtheria cases which are reported to the Board of Health in Boston. The material is large, and includes a large proportion of the worst cases, cases which are sent to us, often as a last resort, for tracheotomy, intubation or other treatment. The series of cases we have had to judge from the past year have been severe cases. About one third of all these have come for intubation or tracheotomy. Each of the hospital staff takes his turn of a period of one or two months as it may be. The cases I mention have been under the care of several physicians. I speak therefore for my colleagues.

The mortality for a series of years was from 40 to 50 per cent. or thereabout, one year amounting to 52 per cent. From December 12, 1894 to May 14th of the current year, 306 patients were admitted. There were 81 deaths, or a mortality of 26.4 per cent., which is a reduction of one-half in the mortality. The operative cases numbered 31, with a mortality of 19, or 61 per cent., which was a reduction of about one-third in the mortality of previous years from tracheotomy and intubation. Comparing that series of cases with the cases for a like period in the year previous, from December 12, 1893, to May 12, 1894, the mortality for this series was 44 per cent. This gives a reduction of about 20 per cent. in the mortality between this year and last year.

There is another way in which, perhaps, the efficacy of this serum may be approximately tested, and that is the results upon the death-rate of the city at large. Of course, that could perhaps be open to more fallacies than the hospital figures; but in the city of Boston, the mortality during the last four months (January 1st to May 1st), has been 14 per cent. of diphtheria as against 41 per cent. in the previous year. Still, allowing for these sources of fallacy, I think the showing appears to be very favorable.

Not only are we impressed with the special effect of the treatment upon individual patients, but also by the general appearance of the diphtheria ward, the appearance of comfort and contentment upon the part of the children. Instead of going into a ward with dread as we have done in former years, to find a large number of pallid, strangling and moribund children, we now go into a ward presenting a very different appearance; and I dare say that all of our physicians undertake this service now with much greater confidence and satisfaction than they ever had before. The effect on membrane is certainly noticeable in many cases. The membrane does not curl up, but it does become more effectually limited. I think the suggestion that this mode of cure does not differ from the course of nature will hardly be borne out by the observation of cases. They do pursue a much more rapid course than in the natural progress of the disease, that is, in the severe forms. The patients get rid of the membrane sooner, are able to sit up in bed, perhaps the next day; they lose their pallor; the fetor disappears; and their convalescence ensues very promptly.

With regard to the number of light cases, upon which statistics are based, I think this criticism hardly applies to our hospitals. The cases are bad, and the average severity of the cases is great, as is shown by the number which require intubation or tracheotomy at the outset. Under this mode of treatment, the proportion of tracheotomies and intubations has diminished materially, and the result of these operations has been more favorable to the extent of perhaps one-third. Of course, a much more favorable result can be expected where the serum is administered on the first, second or third day. We seldom see our cases before the third day.

Paralyses have occurred, but I think in a smaller proportion of cases than before. We know nothing as to the cause of the paralysis in diphtheria.

The nature of epidemics, as Dr. Welch states, varies. Cases may be more severe in one year perhaps than in a previous year; but if we consider the fact that for ten or twelve years there has been a very large mortality and the type in Boston has been a very severe type, I think that this year we cannot consider that as an important element.

As far as my own opinion goes and that of my colleagues, this treatment is most valuable. The ultimate test, of course, must be the result of clinical experience.

Dr. Jacobi: I am certainly favorably impressed with the effects of the treatment; but, as Dr. Welch has pointed out, small numbers of cases, even the number that we have now, are not sufficient to allow us to come to any final conclusion about it. We do not want hundreds, but thousands of cases, in different years and different seasons, in order to get to a final conclusion. There have been seasons in which other treatments have been just as successful. I know of 40 cases of diphtheria in which the bacillus was found, 39 of which got well one after another without antitoxin. I know of years where a dozen cases would get well under other treatment. When I offered antitoxin to a number of my younger medical friends in New York, some of them took it and some of them refused it. They said they were perfectly satisfied with the results of mercurial treatment such as had been in vogue in New York since 1848, where fairly large doses of bichloride are given, largely diluted, at short intervals.

We must not forget that there are almost none of those who have published large numbers of cases but have added something to the antitoxin treatment. One of the most enthusiastic men is Baginsky. In all of his 525 cases he combines the antitoxin with his old local treatment — frequent mild disinfectant washes

to the nose and throat — and insists in not giving them up. My advice to those in New York, who have asked it, has been not only to use the antitoxin treatment but to continue the mercurial treatment as well. I am a practical man. As such, I want to save my patients; and knowing how much I have succeeded in doing in the course of a long number of years with careful mercurial and other treatment, I have deemed it unwise to discontinue such treatment. Is it due to this or to the antitoxin alone, that in all the cases that I have used antitoxin recovery has taken place. I would rather have double treatment than insufficient treatment.

Regarding the existence of albuminuria in diphtheria, we ought not to forget that albuminuria is a very common symptom, as has been known these thirty years past. In Baginsky's cases (525) he directly makes the point that he had less albuminuria in the antitoxin cases than he had in those treated in previous years. He also proved by his statistics that the nephritis was less frequent in the cases treated by antitoxin.

There is one point, particularly, in Baginsky's cases that struck me very forcibly. He says that in the last five years he has seen 2,000 cases. In these there were 523 laryngeal operations; so certainly they were not favorable cases. He states that a large number of his intubations would require tracheotomy following the intubation, and these were mostly fatal cases. Now he states that since the antitoxin treatment, not only is the number of operations very much less, but the results of intubations and tracheotomy are exactly contrary to what they were formerly. While formerly they intubated reluctantly only, they now prefer intubation to tracheotomy; and in a large number of cases intubation has taken the place of tracheotomy; and where they did intubate, only in a small number of cases was tracheotomy required afterwards. This proves to my mind that the claim that membranes limit themselves very soon and are thrown off very soon is sustained by facts, and that therefore intubation is so favorable because these cases have to wait but a short time before the membrane is thrown off.

I want to place myself on record here as a heretic. I do not repeat Hansman's opinion, but I simply state the opinion that I had before and after Hansman — that we have been too much in the hands of our friends the bacteriologists. It is well known that the diphtheria pseudo membrane is the same morphologically; when you have the bacillus or the coccus present you have the same sort of exudation, the fibrin, a few blood-cells, leucocytes, and epithelium changed in the characteristic way. Now, then, if that be so, then I should say that the characteristic of diphtheria is the pseudo-membrane. We should be very poorly off if we should have to rely always on a culture to be made before making a diagnosis. I am not prepared as yet to accept the postulate, for it is nothing else but a postulate, that the diagnosis of diphtheria must necessarily include the presence of a bacillus. The bacteriologists claim that you must call diphtheria those pseudo-membranous processes in which you find the bacillus. That has been accepted, and the result is that nowadays everybody speaks either of a diphtheria or a pseudo-diphtheria.

I am prepared to say that it is only the bacillus cases that are amenable to the antitoxin treatment; therefore, I do not say that in every case a culture should not be made in order to justify the antitoxin treatment. I say that every doubtful case should be treated with the antitoxin. I cannot accept that we have to deal with diphtheria only when we find the bacillus.

DR. J. S. BILLINGS: It is only by statistical methods that the efficacy of any remedy can be settled. The experimental methods in the laboratory will first suggest the treatment and then we must get the evidence by statistical methods prepared over a long time and through various seasons. At present the figures given for the treatment by antitoxin are not sufficient to give absolute and positive results. If you apply the chances of error to these death-rates, you will find that their importance vanishes. Two hundred cases with forty deaths, and three hundred cases with ninety deaths, come within the limits of each other.

As has been pointed out by Dr. Welch, it is difficult to compare the recent carefully observed cases with those which were observed prior to the introduction of bacteriological methods. To compare the mortality in the lump is something like trying to compare the mortality of typhoid fever at this time of accurate knowledge with the mortality of low fevers in 1810, when typhoid, typhus and relapsing fevers were all mixed up together. Now, however, we are in a fair way to get definite information and definite statistics.

It would be very bad for public hygiene if the antitoxin treatment is to be relied upon alone. One of the difficulties that I have in dealing with many of the statistics that are furnished is that there is no statement as to what has been done in the way of local treatment. Dr. Jacobi says he uses both methods. Baginsky also uses the two. Where that is done, such statistics should be put apart by themselves, and the cases where the reliance is solely on the antitoxin should be put out by themselves, and the results compared.

We have not solved, by any means, bacteriologically or otherwise the problems as to the spread of diphtheria or its difference in mortality in different epidemics. Twelve years ago diphtheria was rife throughout the Northwest. It swept away 60 to 70 per cent. of the children under five years of age. The mortality, collected by the very imperfect statistical methods in the year ending June 1, 1880, was simply enormous. Now, using the same methods, ten years afterwards, we find that the mortality from diphtheria is extremely small in all that region. It has increased very greatly in the East, and markedly so in the cities. For instance, it is more prevalent in the cities and towns in Massachusetts than it was ten years ago. The reason for this we know nothing about as yet.

DR. MASON: Of course, local treatment is not abandoned in our hospitals; and general treatment, as stimulants and tonics, is also continued. It may have some bearing upon that if I state that since the use of the antitoxin treatment, the expenses of the hospital for local agents, such as peroxide of hydrogen, have diminished $700.

DR. A. C. ABBOTT: With regard to Dr. Jacobi's complaint that the clinicians have allowed themselves to be too much in the hands of bacteriologists in the study of diphtheria, it seems to me that their reasons for allowing themselves to occupy this position are very good. It is very well known to those who have followed the subject closely, that until the bacteriologist made his appearance the knowledge of diphtheria from a clinical standpoint was in a very chaotic condi-

tion. The reliance that was placed upon differentiating diphtheria from other pseudo-membranous inflammations of the throat on pathological and anatomical grounds was very uncertain. Thus, as Dr. Jacobi has said, there are conditions in the throat that on anatomical grounds cannot be recognized. Fortunately the bacteriologist made his appearance, and found factors concerned in the production of these processes that not only differed one from the other biologically, but also in the more important point, in the production of disease. The secondary occurrences in diphtheria are definite pathological manifestations; secondary occurrences that are found in the few fatal cases of pseudo-membranous inflammation of the throat due to streptococci, are of a totally different nature and are associated with the immediate presence of bacteria at the points of secondary deposit. Of course, it is too well known to require dwelling upon that the cases which bacteriologists recognize as non-diphtheritic are not by any means as fatal as those recognized by them as diphtheria. If we are to have statistics of any value on the subject, we must have some fixed point to go on, and the standpoint taken by the bacteriologists is the only one that supplies that want.

Dr. G. M. Sternberg: A word in reference to the nature of the experimental evidence upon the lower animals. The experimental evidence in regard to tuberculin on the lower animals was very unsatisfactory, and is still unsatisfactory. But in the cases of the diphtheria infection, it is demonstrated beyond peradventure that susceptible animals are cured by the timely administration of doses of the serum. The thing has been tested in laboratories all over the world, and in this laboratory by Dr. Reed. Two guinea-pigs, for example, are inoculated with a fatal dose of the diphtheria cultures. One of them gets a dose of antitoxin, the other does not. The one that does not get it dies, the other recovers. That has been done over and over again; and, as you know, that is the way it is tested before it is sent out. The results are almost as definite as a chemical experiment in a test-tube. In a healthy animal of a given weight, a given dose of antitoxin will neutralize a given dose of toxine.

Very interesting experiments have been made by various men on the presence of antitoxin in the milk of an immune animal. A goat is immunized and has the antitoxin in considerable quantity in its milk, although not in so large a proportion as in the blood, perhaps one-fifteenth as much in the milk. It is given off constantly as in the blood. This, of course, raises the question as to whether there is any continuous production of the antitoxin. From the milk it may be obtained in the form of a dry powder.

Dr. F. H. Williams: I began using antitoxin last September, and soon noted the very marked improvement in many severe cases in which it was used early, within twenty-four or forty-eight hours. Sometimes one can see the membrane loose in the pharynx twelve hours or so subsequent to the administration of the antitoxin. In some cases it seems to me the convalescence is less rapid and less satisfactory than without it. I have noticed in a few cases some swelling of the joints, which persisted on one case for more then two months. Doses of half a grain of morphia were hardly sufficient to overcome the pain which the patient suffered.

As has already been stated other means of treatment should not be overlooked. In some cases local treatment may be serviceable, although in many cases it is not required.

I want to show here a syringe for injecting antitoxin, which is a modification of the syringe which I got up some years ago for another purpose. This syringe is made of glass and is packed with asbestos. To sterilize it it is only necessary to boil it in water. To prevent the breaking off of the needle, I have put a piece of rubber tubing, between the needle and the syringe, which allows of considerable motion without breaking the needle. This syringe is less expensive than the ordinary syringe, and can be kept perfectly clean.

One word regarding the bacteriological test. Other things being equal, the prognosis is decidedly more favorable in cases where we do not find the bacillus than where we do. As regards the prevention of diphtheria, it seems to me, that we have in the bacteriological test, a very valuable agent. For some time past I have been in the habit of having the throats of all the members of the household in which there was a case of diphtheria, tested in this way, and I have not infrequently found, where there were several children, that there was one or two and in some cases three other persons in the family infected, where by simply looking into the throat nothing was to be seen. These people would develop all the general and local symptoms of diphtheria, sometimes within one or two days, sometimes not for several days after the discovery of the bacillus.

Dr. Osler presented a statement of the cases from the wards of the Johns Hopkins Hospital.

*(To be continued.)*

## Recent Literature.

*Memoranda and Tables of Human Anatomy.* Vol. I, with a preface by Prof. James E. Garretson, Muscles and Ligaments, by Justin Harold, A.M., M.D., and Sebastian J. Wimmer, M.A., M.D., A.M., M.D. Philadelphia: The Medical Publishing Co. 1894.

A very prettily got up compendium.

*Dissections Illustrated.* By C. Gordon Brodie, F.R.C.S., In four parts. Part IV, The Abdomen. London: Whitaker & Co. New York: MacMillan & Co., 1895.

This is the fourth and last part of this series of colored plates, with very short descriptions of them. Enough has been said of the preceding ones to show that we find much to praise, though the treatment is limited.

*Travaux d'Electrotherapie Gynécologique.* By Dr. G. Apostoli. Paris, 1894.

This is the first half-yearly volume of a series founded and published by Apostoli, the object of which is to collect and translate into French all the most important articles on gynecological electro-therapy which have appeared and are appearing. The present volume of over seven hundred pages contains translations of English, American, Russian, Italian, German, Hungarian, Canadian, Belgian, Danish, Polish and Austrian articles. The importance and convenience of such a series of papers is certainly very great, and their value is increased by foot-notes and annotations by the editor.

THE BOSTON

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## THE TREATMENT OF TETANY BY THYROID EXTRACT.

IN view of the continued interest associated with the subject of the diseased thyroid gland, any new information from trustworthy sources should be heartily welcomed. Dr. Byrom Bramwell writes, in a recent number of the *British Medical Journal*, of the relationship of tetany to removal of the thyroid gland, and draws therefrom interesting and important conclusions as to the employment of thyroid feeding in the former condition.

He refers first to a case seen in consultation, in which tetany had supervened upon removal of the thyroid. To this patient small doses of thyroid extract had been given without appreciable effect. By largely increasing the amount, however, a speedy improvement followed by ultimate cure resulted.

The fact of tetany occurring after complete removal of the thyroid has been established by a large number of observations. Gowers, for example, says: — "when the whole thyroid is removed tetany supervenes in about one-sixth of the cases. The symptoms of tetany set in during the first ten days after the operation. It does not follow partial extirpation. It had been observed in association with atrophy of the thyroid and myxedema."

Dr. Bramwell's view of this operative tetany is that it is merely one manifestation of acute myxedema, and that it is the result of the arrested thyroid secretion. That such otherwise fatal tetany may be cured, as in the above case, by thyroid extract tend to the confirmation of this view; the acute myxedema, however, of which the tetany is but a symptom, is more properly to be regarded as the cause of death, than the tetany itself.

From a consideration of the striking dependence of tetany upon the integrity of the thyroid gland, as shown by operative removal of the gland, Dr. Bramwell arrives at the conclusion that ordinary, so-called idiopathic tetany may be due simply to deficient thyroid secretion and therefore might be cured by the administration of thyroid extract.

An opportunity soon offered itself of testing his theory clinically, with a result, which seems certainly to justify his position. The details of his case are of such interest that we shall give them at some length.

The patient was a boy of eight who had been suffering from tetany for more than a year, with slight and merely temporary relief from bromide of potash and chloral hydrate. The case was a perfectly typical one, characterized by frequent and severe spasms, affecting the muscles of the hands, feet, arms, legs, chest and larynx. Pain was at times extreme; the temperature subnormal. The patient was worse in cold weather, as is usually the case, a fact again which points toward the relationship between tetany and myxedema, since myxedema is also aggravated and even induced by cold. Regarding this case, which had passed out of Dr. Bramwell's personal care, he advised, in consultation, a thyroid treatment for the following reasons:

(1) Total extirpation of the thyroid gland is followed in a considerable proportion of cases by the development of tetany. This form of tetany is often fatal.

(2) In some cases, at all events, this operative tetany can be promptly arrested and cured by the internal administration of thyroid extract.

(3) Operative tetany is in all probability merely a manifestation (symptom) of acute myxedema and due to arrested thyroid secretion.

(4) Idiopathic tetany, like idiopathic myxedema, seems to be induced and aggravated by cold.

(5) It is not improbable, therefore, that idiopathic tetany may be the result of defective thyroid secretion.

(6) If this is so it is probable that idiopathic tetany can, like idiopathic myxedema, be cured by the administration of thyroid extract.

The treatment was carried out with the result that improvement began immediately, and went on to almost complete cure. The annoying symptoms of spasm, pain, headache, and palpitation, passed off. Two months after beginning treatment there had been no return of the spasms, and the mental condition was decidedly better. The patient was able to go to school and take an interest in his tasks.

Although one case under ordinary circumstances, could hardly serve as the basis of a generalization, Dr. Bramwell thinks, since the remedy was given with a definite therapeutic object in view, based on a clear line of reasoning, that certain just deductions may be drawn. It seems to him reasonable, as it certainly does to us, that in some cases, at least, idiopathic, like operative tetany, is due to defective thyroid secretion and may be arrested and cured by the administration of thyroid extract.

His final conclusions are as follows:

It is highly probable that the thyroid extract will be found to be a valuable remedy in some other cases of tetany. I do not say in all cases, for it is possible that the clinical condition which we term tetany may, like the clinical condition which we term an epileptiform convulsion for example, be due to a variety of different causes; hence it does not follow that because thyroid extract can cure operative tetany and some cases of idiopathic tetany, that it will cure all cases of idiopathic tetany.

Idiopathic tetany is a comparatively common condition in

young children, but is rare in older children and in adults. It is possible that the infantile and the older cases may be due to different conditions, and that thyroid extract may cure the older cases but may be useless in the infantile cases. Whether this is so or not can only be determined by direct observation and therapeutic research.

Infantile tetany is in the vast majority of cases associated with rickets. Like laryngismus stridulus, it is merely a manifestation of rickets, and it is important to remember that it is usually very amenable to treatment, easily cured by appropriate feeding, milk, fresh air, tonics, cod-liver oil, the syrup of phosphates, lacto-phosphate of lime, bromide of potassium, and chloral hydrate. Further, in many cases it tends to get well itself. These facts must be kept in mind in drawing conclusions as to the effects of the thyroid extract in the treatment of this, the ordinary infantile form of tetany.

I am anxious then to know whether (*a*) the ordinary infantile form and (*b*) the rarer adult form of tetany can be arrested and cured by the administration of thyroid extract.

If it should prove to be the case that the ordinary form of infantile tetany is arrested by the administration of thyroid extract, it will, I think, be reasonable to conclude that it, like operative tetany, is due to deficiency of the thyroid secretion. But, further, if the ordinary form of infantile tetany, which seems merely to be a manifestation of rickets, can be cured and arrested by the administration of thyroid extract, it will be very interesting and important to note the effect which thyroid extract (or, preferably, perhaps, thymus extract) has in cases of rickets and laryngismus stridulus.

Dr. Bramwell hopes that his preliminary consideration of the etiology of tetany in its possible relation to the thyroid gland may lead others, whose clinical opportunities may be greater than his own, to investigate the matter further. His case and its outcome under thyroid feeding, would most certainly justify any to whom the opportunity offers, in faithfully employing thyroid extract in cases of primary tetany as well as in those supervening upon complete thyroidectomy.

## THE BACTERIOLOGY OF WATER-SUPPLIES.

In response to the call of the American Public Health Association through Surgeon Charles Smart, U. S. A., its chairman, about forty bacteriologists met at the New York Academy of Medicine, June 21st and 22d, for the purpose of establishing some common plan for systematic work in bacteriology, and especially the bacteriology of water-supplies. The papers on the programme were listened to with attention, and discussed in a most free and informal manner. The convention was presided over by Prof. W. H. Welch, of Baltimore; and much of the success of meetings was due to his skill, tact and suggestiveness in directing the discussion.

In one way the meetings proved to be a great success, showing clearly, as they did, the inside workings of many of the best-known laboratories of the country. And this knowledge, together with the opportunities of personal acquaintance and estimation, made every one feel that the time had been well spent. Throughout the discussions the impression made was the absolute honesty of the speakers, and their perfect willingness to expose their defeats as well as their successes. It was most interesting and encouraging to find out how universal was the dissatisfaction with the existing methods of definitely differentiating bacteria. At the same time one could not help having a feeling of disappointment that there were not more positive suggestions from the readers; for, with the exception of the work of the gentlemen connected with the Massachusetts Board of Health, there was little that was new, positive and constructive presented to the convention. However, it cannot result otherwise than that so many men coming together and freely recognizing their limitations must be productive of much good in the near future.

A committee was appointed to consider both the papers presented and the discussion that followed, and to make a report to the American Health Association as to the most desirable methods to be observed to secure the greatest uniformity in the results of the bacteriological examination of water. The names of this committee are sufficient to give surety that this important work will be well done. They are Prof. W. H. Welch, M.D., Chairman; Prof. W. Sedgwick, Ph.D.; Prof. Theobald Smith, M.D.; Prof. T. M. Prudden, M.D.; Prof. J. G. Adami, M.D.; George W. Fuller, S.B.; Prof. A. C. Abbott, M.D.; Prof. V. A. Moore, B.A., M.D.

A further suggestion was made which was of the greatest importance. Realizing that the chief result which the convention had arrived at was the recognition of a large number of unsolved problems in what may be called fundamental bacteriology, the committee were instructed to formulate a number of these questions and refer them to the various laboratories for work, possible solution and future report. If this is carried out, it will mean an association of the best laboratories of America, all working under practically the same methods, and whose results, when given to the public, will be in terms that can be interpreted by every one conversant with the subject. Having the utmost confidence that the difficult task imposed upon the committee will be well done, and from the *esprit du corps* created by the meetings, the convention may be said to have been a great success.

## MEDICAL NOTES.

A MEETING OF THE AMERICAN ACADEMY OF RAILWAY SURGEONS will be held in Chicago on September 25th, 26th and 27th, 1895.

THE BRITISH MEDICAL JOURNAL. — The receipts of the *British Medical Journal* last year were $176,000; the expenses were over $150,000. The total assets over liabilities exceed $279,000.

MEDICINE IN TOKYO. — In Tokyo a recent census has shown that the city contains 2,315 medical men, 70 dentists, 69 veterinary surgeons, 371 pharmaceutical chemists, two city hospitals, three government hospitals, and 41 private hospitals.

A KINDERGARTEN FOR DEAF AND DUMB CHILDREN. — A kindergarten for deaf and dumb children was opened in Berlin in April, in 1894. The first annual report which has lately been issued, shows

that excellent results have been accomplished with the fourteen children who have attended the school during its first year.

GOITRE IN THE HIGH ALPS. — Leon Jacques is of opinion that endemic goitre is an infectious disease, the germ of which is not yet isolated, but which exists in the water, soil, air and fruits of the infected area. The inhabitants are predisposed by certain secondary influences — poor water, vitiated air, unhealthy dwellings, poor food and, above all else as a determining cause, the influence of extreme temperatures, that is, excessive cold and heat acting alternately. Removal of these causes will nearly exterminate the disease; and the author demands the establishment of cisterns in the infected villages, the construction of roads and better homes, and the suppression of marriages between goitrous subjects. In its incipiency goitre is best combated by iodine; at a more advanced stage it is amenable to surgical measures. — *Journal of the American Medical Association.*

"LES SONNETS DU DOCTEUR." — Noir, in *Le Progrès Médical*, gives the following extract from "Les Sonnets du Docteur," by Camuset, descriptive of the self-congratulatory feelings of an aged physician on returning from a visit to the labyrinths of the Marquis de Rambuteau.

Moi, j'en sors souriant, car j'eus des mœurs austères.
Mes organes sont purs comme ceux des agneaux.
L'âge les rend peut-être un peu moins génitaux,
Mais ils sont demeurés largement urinaires.

THE POWER OF IMAGINATION. — A man was recently admitted to the Bootle Hospital suffering from all the symptoms of opium-poisoning, and he confessed to having swallowed three-pennyworth of the drug. On inquiry, however, from the chemist who was stated to have supplied the laudanum, it transpired that the chemist, being suspicious of the intention of the customer, did not supply him with the laudanum undiluted, but with a mixture of twenty drops in a small quantity of colored water. The victim naturally recovered, but not till he had undergone the agonies, physical and mental, of opium-poisoning.

RESULTS OF THE TREATMENT OF CANCER BY STREPTOCOCCUS TOXINES. — In *La Médecine Moderne*, June 1, 1895, are given some rather discouraging reports on the treatment of cancer by this method. Bruns announces that in six cases of cancer he has seen no improvement under this treatment; and Petersen remarks with regard to the six cases reported by Emmerich and Scholl, it is only necessary to read their accounts of the cases to see that they are as little "cured" as possible. Angerer has just given the medical society of Munich a further report on one of the cases treated by Emmerich in his service. The woman in question died of cancerous cachexia at her home just one month before the publication of Emmerich and Scholl's memoir, in which she was presented as a permanent, or at least temporary, cure. The cure seems to have been temporary in the extreme sense of the word.

A CASE OF HYPERPYREXIA. — Alfred Stanley in the *British Medical Journal* of May 25th, reports a case of pleurisy and pneumonia, in which the temperature twice reached the extraordinary level of 114°. How much higher it may have gone is not known, as the writer states that the thermometer was marked as high as 110°, but that there was space for four degrees above this mark, and the mercury filled that space to the top. This reading was checked by two other thermometers, which registered the same. During these extraordinary excursions of temperature, which only lasted from two to four hours, the pulse remained between 84 and 96, and there was no pain nor delirium, but the patient complained of loss of sensation in the hands and feet. The case recovered, and the doctor had his thermometer tested at Kew Observatory, and found it practically correct.

## BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, June 26, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 88, scarlet fever 23, measles 88, typhoid fever 15.

ACADEMIC HONORS TO PROFESSOR PARK AND PROFESSOR DOCK. — Harvard College has conferred the A.M. degree *honoris causa* upon Prof. Roswell Park, M.D., of Buffalo, N. Y., and upon Prof. George Dock, M.D., of Ann Arbor, Mich.

MEDICAL REGISTRATION. — As a result of the examination held by the Massachusetts Board of Registration in Medicine on June 4th, twenty of the twenty-eight applicants examined were accepted.

THE HARVARD DENTAL ALUMNI ASSOCIATION. — The annual reunion and dinner of the Harvard Dental Alumni Association was held at the Hotel Thorndike last Monday evening. Dr. D. M. Clapp presided, and the speakers were M. C. Ayres, editor of the *Advertiser*, Rev. A. E. Winship, editor of the *Journal of Education*, Hon. C. F. Adams, Hon. Sherman Hoar, Prof. V. B. Loring, Dr. W. M. Conant and others. Professor Fillebrown of the Dental School gave some information of interest concerning the school, referring to the fact that the faculty has just raised the standard of the institution by stiffening the requirements for entrance, proficiency in either Latin or French being henceforth obligatory. Recent improvements in material facilities at the school, have perhaps, said the speaker, postponed the erection of the expected new building. A letter was read from Dr. C. A. Brackett, of Newport, expressive of the sympathy felt by the members of the Association for Dr. T. H. Chandler, who has been connected with the Harvard Dental School almost from its inception. Dean Chandler has been quite ill for a considerable time. At the business meeting Dr. Potter read a report concerning the Dental School, which stated the building fund to be in good condition. These officers were elected: President, James Shephard; Vice-

President, Frank Perrin; Secretary, W. S. Boardman; Treasurer, W. E. Page; Executive Committee, W. E. Boardman, W. P. Cooke, D. W. Moriarty.

Trustees of the Massachusetts Hospital for Epileptics. — Governor Greenhalge has appointed as trustees of the Massachusetts Hospital for Epileptics: Dr. William N. Bullard, of Boston, five years; Mabel W. Stedman, Boston, four years; Charles A. Clough, Boston, four years; Dr. Albert C. Getchell, Worcester, three years; Adelaide A. Calkins, Springfield, two years; Dr. Roswell B. Benner, Lowell, two years; Francis L. Higginson, Boston, one year.

Officers of the New Hampshire Medical Society. — At the Annual Meeting of the New Hampshire Medical Society at Concord, N. H., on June 4th, the following officers were elected for the ensuing year: President, E. F. McQuesten, Nashua. Vice-President, A. P. Richardson, Walpole. Treasurer, M. H. Felt, Hillsboro Bridge. Secretary, Granville P. Conn, Concord. Executive Committee, Charles R. Walker, Concord; George D. Towne, Manchester; F. A. Stillings, Concord; W. T. Smith, Hanover; F. E. Kittredge, Nashua. Officers of the Board to Issue Licenses: President D. C. Adams, Manchester; Secretary, T. Hiland, Concord; Associate; J. W. Parsons, Portsmouth. Delegates to the various societies were also elected. After the adjournment the anniversary dinner was served at the new Eagle Hotel.

NEW YORK.

Commencement at the College of Physicians and Surgeons. — The commencement of the College of Physicians and Surgeons was held, in connection with that of Columbia University, at Carnegie Hall on the evening of June 12th. A class of 192 was graduated, and before the candidates received their diplomas the Hippocratic oath was administered to them by Prof. John G. Curtis. Among the degrees conferred by the University was that of LL.D. upon Thomas Messinger Brown, M.D., President-elect of Lehigh University. The Cartwright biennial prize of $500, for the best medical essay submitted, was awarded to Dr. James Ewing, whose subject was antitoxin treatment.

Successful Treatment of a Broken Neck. — A lady whose neck was recently broken by a fall from a hammock, and whose case was treated by Drs. Reginald Sayre and H. W. Frauenthal, is reported as doing well and in a fair way of recovery.

Changes in the Staff of the Harlem Hospital. — The Commissioners of Charities and Correction have removed the entire medical board of Harlem Hospital, owing to certain complaints as to neglect of patients and other changes, and decided to appoint a new board of eight physicians and surgeons. The selection of this new visiting staff is to be made by the governing faculties of the College of Physicians and Surgeons, the Medical Department of the University of the City of New York, and Bellevue Hospital Medical College. Considerable dissatisfaction with this arrangement is expressed by medical men not connected with either of the three schools named, and especially by those interested in the Polyclinic and Post-Graduate Schools.

Veto of the Bill for the Transfer of the Dependent Insane. — Governor Morton has finally decided not to approve the Conkling bill, providing for the transfer of the New York City dependent insane to the care of the State, which was returned to the governor by Mayor Strong without taking action thereon. The governor filed a memorandum on the bill giving his reasons for the decision, in which he discusses at length his power under the new Constitution when a bill has been rejected or approved by the mayor. In conclusion, he says: "I deeply regret the condition produced by the failure of the mayor to approve this bill, but I cannot, in a conscientious performance of my constitutional duty, add to the unfortunate result of the mayor's want of action, a plain violation of the Constitution." Much influence was brought to bear upon Governor Morton to induce him to sign this bill, especially by the State Commission in Lunacy, who urged that the measure was in accordance with the will and desire of the people, in both State and County, as expressed by a unanimous vote in both Houses of the Legislature. The unsatisfactory and over-crowded condition of the insane asylums under city management was also dwelt upon with much emphasis.

A Bill for the Study of the Effects of Alcohol and Narcotics. — The governor has signed the Ainsworth bill providing for a broader study of the nature and effects of alcoholic drinks and narcotics in connection with physiology and hygiene in the public schools. With the bill he filed the following memorandum: "The fact that the Legislatures of forty-one States, including our own, and the Congress of the United States, have already passed laws providing for instruction in the subjects indicated in this bill, shows that it is supported by a widespread public sentiment; and inasmuch as this bill seeks to simplify and reduce to a more systematic method the study of the effects of alcoholic drinks and narcotics upon the human system, without necessarily decreasing the amount of study required by the present law, I think it should receive executive approval."

A Recovery from a Tremendous Electrical Shock. — On June 21st the foreman of the Rochester gas and electricity was accidentally exposed for some seconds to an electric current said to have been of a strength of 2,899 volts. Life was apparently destroyed by the shock, but efforts at resuscitation were at once commenced, and after 45 minutes' employment of artificial respiration and other measures the first sign of life was noticed. Then natural breathing began and in half an hour more he opened his eyes and recognized those about him. His body was considerably

burned, but otherwise the patient is now said to be quite well.

BEQUESTS TO ST. LUKE'S HOSPITAL. — By the will of the late Rufus Waterhouse the bulk of his estate, amounting to about $200,000, is left to St. Luke's Hospital for the purpose of establishing and maintaining the "Mary S. Waterhouse Memorial Ward" for consumptive sewing women or consumptives dependent upon sewing women. Mr. Waterhouse was a large manufacturer of men's furnishing goods. His wife, whose name the ward will bear, died of phthisis, and he saw many of the young women whom he employed stricken with the disease and unable to support themselves. He died a widower and childless. The will of Percy H. Pyne, who died at Rome, Italy, on February 11th, also leaves $20,000 to St. Luke's Hospital.

DEATH OF DR. SALTONSTALL. — Dr. Gilbert Saltonstall, Health Inspector of Jersey City, died suddenly at his home in that city on June 15th. He was sixty-six years of age, and had served as Health Inspector since 1880.

DEATH OF DR. MEEKS.— Dr. Meeks, of Stamford, Conn., died recently at the Presbyterian Hospital, of typhoid fever. Since April 21st there have been considerably over four hundred cases and about thirty deaths from the outbreak of typhoid in Stamford which was traced to a contaminated well on a milkman's premises. A full account of the epidemic was given in the JOURNAL of May 9th.

## Miscellany.

### A NOVEL FORM OF OBSTACLE RACE.[1]

SOME years ago a favorite comic song at suburban evening parties recorded the adventures of a man with a "cork leg," which, if we remember right, ran away with its owner. If races of the kind which recently took place at Nogent-sur-Marne become fashionable, a modern Pindar will be required to celebrate the swiftness of wooden legs. The "events" were arranged for runners who had had the lower limb amputated above the knee (*cuissards*), and for those who had lost a leg below the knee (*jambards*). The distance in each case was 200 metres. In the final heat for the "grand championship" the prize among the "thigh-ers" fell to M. Roulin, who did the distance in excellent style in 30 seconds. Among the "leggers" the victor was M. Florant, who travelled over the same course in 36 seconds. It is worthy of note that the "thigh-ers" on the whole, showed better form than the "leggers," two others — MM. Blangy and Jhienne — having in earlier heats done their 200 metres in 30 and 33 seconds respectively, while the fastest time among the "leggers" was 36. The longest time among runners who were "placed" was 55 seconds. Several of the runners were over fifty years of age. The champion, Roulin, who belongs to Orleans, is thirty years of age, and lost his leg as the result of an accident when he was twenty-two. This interesting athletic contest may possibly lead to boxing matches for men who have lost an arm, but it is hoped that we shall be spared a singing competition among persons with artificial larynxes.

[1] British Medical Journal.

## OBITUARY.

### HENRY WILLARD WILLIAMS, A.M., M.D.

IN speaking of Dr. Henry W. Williams we shall confine ourselves to his professional career. It is just to do so; for he, more than others, has impressed his strong personality on his medical brethren, as he lived and worked largely for them. He was, all in all, a doctor first, and other things afterwards.

Of large stature and strong character, he was a conspicuous figure on all medical occasions. He was familiar to all as a frequent and forcible, but persuasive speaker; and an excellent presiding officer.

He always had the welfare of the Massachusetts Medical Society at heart.

Conservative to a fault, he yet was kindly and thoughtful of his medical brothers. He was one of the founders of the Massachusetts Medical Benevolent Society, and long its president.

His own life was a marked instance of success achieved by untiring patience, punctuality and conscientious discharge of public duty, as well as by much ability as a hospital surgeon and teacher. Three times a week, for twenty-six years, his carriage entered the hospital gate at nine o'clock, every morning; and he devoted two or three hours to a laborious eye clinic.

Unlike some specialists, he broadened his mind by being first a general practitioner.

The writer recalls well the evenings in his little office in Essex Street, where eye cases were gathered in from a poor neighborhood, to instruct a small class of medical students. So, too, one remembers toiling with him and with his able colleague, Dr. Charles E. Buckingham, at the sparsely attended clinics of the City Hospital in its early days, when the labor was great and the reward small.

As an operator on the eye, few equalled him. He was ambidexterous: and to see him extract a double cataract, first with the right hand and then with the left, with equal precision and grace, was a surgical *coup* never to be forgotten.

He did not grow old, but retained his enthusiasm to a remarkable degree; and in middle age he went abroad to master the ophthalmoscope, and the application of the laws of optics to astigmatism.

He was a consistent and steady opponent of the admission of women to the medical profession. But he was as sturdy and honest in suppressing quackery, as in favoring his weaker medical brothers with professional advice and with substantial aid.

Occupying with success a chair of ophthalmology in the Harvard Medical School, he marked his appreciation of its worth, by endowing it from his private earnings.

His mind was virile, set, consistent, naturally meeting with and contending with opposition.

He left his mark on his times and on our community.

And to how few is it permitted, in the course of Nature, to live to see six sons grown up, three of them in one's own profession, and to have one's remains borne to the funeral altar on their shoulders!

D. W. C.

Ophthalmic Surgeon, Boston City Hospital, 1864 to 1891.
Professor of Ophthalmology, Harvard Medical School, 1868 to 1890.
Honorary Master of Arts, 1868.
Honorary Member Phi Beta Kappa, 1871.
Boylston Prize Essayist, 1868.
Founder Massachusetts Medical Benevolent Society, 1869.
President Massachusetts Medical Society, 1880 to 1882.
President and Founder of the American Ophthalmological Society.
Fellow of the American Academy of Arts and Sciences.
Author of numerous monographs, and of two distinct treatises on the eye.

## Correspondence.

### MASSACHUSETTS REGISTRATION REPORT.

SPRINGFIELD, MASS., June, 1895.

MR. EDITOR: — Having been engaged in preparing a paper upon certain phases of the divorce question for a club in this city, I was referred to the Massachusetts Registration Report for certain information which I desired. I find, however, on consulting the last report for 1893, that it is extremely untrustworthy, so far as any correct information can be had. I desired to know how long divorced people live together before obtaining divorce, and find a table on page 132 which pretends to answer this question; but the compiler has in this table contented himself with a defective method of dividing the sum of five averages by five to obtain a five-year mean, without noticing that the factors from which his averages are obtained are not uniform, hence the footing of each of his ten columns is incorrect, and this vitiates most of the figures on the following page. For example, 9.19 should read 9.93; 10.96 should read 10.34; 7.03 should read 6.87, etc. These figures may be verified by consulting the reports of the previous years.

On turning to other pages I find that a similar defective method has been employed in other instances; and what makes the matter worse is the fact that the compiler states in a somewhat boasting manner, for a public document, that these figures "have been made with the greatest care, and that they have been reviewed by an able and experienced statistician wholly familiar with vital statistics."

On examining this report more carefully, and comparing it with some early reports previous to 1860 which I obtained at a second-hand bookstore, I find it to be utterly defective and untrustworthy, and by compared with the excellent work of those worthy men, Dr. A. Gould, Mr. Shattuck and others which made our State a shining example in this respect, this report shows a lamentable falling off.

Now a careful examination of one or two of these reports shows that they are the result of the compilation of the work, mainly of the physicians and clergy of the State, who make their returns directly to the city and town authorities, and these authorities in turn send them to the Secretary of State. It certainly is an injustice to these gentlemen that their work is not fairly represented.

If there is any reason why the official who has this work in charge should thus depreciate its value, it is time that his reason should be known. I asked one of the local physicians about the matter, and he informed me that, for the past few years the entire medical profession has given up all confidence in this report, in consequence of its inaccuracy and its disregard of the general opinion of the profession, which demands better and more useful work. On asking him whether any paper or journal had taken special interest in this matter, he kindly referred me to your journal, and hence this letter. Yours very truly,

SPRINGFIELD PARSON.

### BICYCLE SADDLES.

BALTIMORE, 11 MT. VERNON PLACE,
June 22, 1895.

MR. EDITOR: — I have found an unusually long saddle, with but little dip to the seat and almost no elevation of the anterior projection which meets in some instances the objection urged by Dr. Chadwick. It is also in my opinion the safest saddle for men.

Such an one was formerly manufactured and known as the "Sager Saddle"; but is now, I believe, out of style, and can only be procured second-hand.

By proper tilting, a most secure seat is obtained directly upon the tuberosities of the ischia, without noticeable pressure anteriorly. Yours, etc., H. B. J.

### METEOROLOGICAL RECORD.

For the week ending June 15th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

| Date. | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r. * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A. M. | 8.00 P. M. | Daily mean. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | 8.00 A. M. | 8.00 P. M. | |
| S.. 9 | 30.24 | 59 | 66 | 52 | 58 | 78 | 68 | E. | S.E. | 8 | 5 | C. | C. | |
| M..10 | 30.21 | 66 | 77 | 54 | 56 | 75 | 66 | S. | S.W. | 7 | 11 | C. | C. | |
| T...11 | 30.22 | 76 | 84 | 62 | 83 | 72 | 77 | S.W. | S.W. | 7 | 12 | F. | C. | |
| W..12 | 30.08 | 64 | 86 | 63 | 73 | 82 | 78 | S.W. | S.W. | 12 | 14 | C. | C. | |
| T...13 | 29.84 | 74 | 81 | 68 | 72 | 79 | 76 | S.W. | S.W. | 11 | 11 | F. | F. | |
| F...14 | 29.76 | 76 | 86 | 66 | 70 | 45 | 58 | W. | W. | 12 | 9 | C. | C. | |
| S...15 | 30.04 | 70 | 75 | 64 | 83 | 59 | 86 | N.E. | S. | 19 | 6 | C. | O. | |
| ☞ | | | | | | | | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; Sf., snow. † Indicates trace of rainfall ☞ Mean for week.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 15, 1895.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diarrheal diseases. | Diphtheria and croup. | Measles. |
| New York | 1,956,000 | 657 | 275 | 19.35 | 12.75 | 3.00 | 6.45 | 5.70 |
| Chicago | 1,800,000 | — | — | — | — | — | — | — |
| Philadelphia | 1,139,457 | 352 | 107 | 14.56 | — | 3.08 | 5.88 | .84 |
| Brooklyn | 1,043,000 | 300 | 113 | 14.10 | 11.70 | 2.70 | 5.70 | 3.60 |
| St. Louis | 540,000 | — | — | — | — | — | — | — |
| Boston | 501,107 | 200 | 84 | 14.00 | 13.50 | .10 | 9.50 | 1.50 |
| Baltimore | 500,000 | — | — | — | — | — | — | — |
| Washington | 285,000 | 79 | 18 | 5.04 | 17.64 | 2.52 | — | — |
| Cincinnati | 325,000 | 103 | 28 | 10.67 | 13.58 | 2.91 | .97 | 5.82 |
| Cleveland | 325,000 | 85 | 25 | 8.19 | 8.19 | 2.34 | 1.17 | — |
| Pittsburg | 272,000 | 71 | 23 | 22.56 | 14.10 | 16.92 | 1.41 | 1.41 |
| Milwaukee | 285,000 | — | — | — | — | — | — | — |
| Nashville | 87,754 | 28 | 10 | 10.71 | 7.14 | 7.14 | — | — |
| Charleston | 65,165 | 57 | 28 | — | 1.75 | — | — | — |
| Portland | 40,000 | — | — | — | — | — | — | — |
| Worcester | 100,410 | 35 | 9 | 8.58 | 5.72 | 2.86 | — | — |
| Fall River | 95,253 | — | — | — | — | — | — | — |
| Lowell | 90,613 | — | — | — | — | — | — | — |
| Cambridge | 79,607 | 15 | 5 | 26.66 | 6.66 | 6.66 | — | — |
| Lynn | 65,123 | 12 | 2 | 8.33 | 16.66 | 8.33 | — | — |
| Springfield | 50,384 | 12 | 6 | 25.00 | — | 8.33 | — | 16.66 |
| Lawrence | 49,200 | 15 | 5 | 6.66 | 20.00 | — | — | 6.66 |
| New Bedford | 47,741 | 13 | 8 | 6.79 | 6.79 | — | — | — |
| Holyoke | 43,348 | — | — | — | — | — | — | — |
| Brockton | 33,939 | — | — | — | — | — | — | — |
| Salem | 33,158 | 10 | 2 | 10.00 | — | — | — | — |
| Haverhill | 32,925 | 10 | 4 | 30.00 | 10 00 | — | 10.00 | — |
| Malden | 30,209 | 8 | 3 | — | 37.50 | — | — | — |
| Chelsea | 29,806 | — | — | — | — | — | — | — |
| Fitchburg | 29,363 | 3 | 0 | — | — | — | — | — |
| Newton | 28,837 | — | — | — | — | — | — | — |
| Gloucester | 27,293 | 8 | 3 | 12.50 | 12.50 | — | 12.50 | — |
| Taunton | 26,954 | 6 | 2 | — | 33.33 | — | — | — |
| Waltham | 22,058 | 3 | 1 | — | — | — | — | — |
| Quincy | 19,642 | 8 | 3 | — | — | — | — | — |
| Pittsfield | 18,892 | 9 | 2 | 11.11 | — | — | — | — |
| Everett | 16,585 | 3 | 0 | — | 66.66 | — | — | — |
| Northampton | 16,331 | 1 | 0 | — | — | — | — | — |
| Newburyport | 14,073 | — | — | — | — | — | — | — |
| Amesbury | 10,920 | 3 | 0 | — | 33.33 | — | — | — |

Deaths reported 2,157; under five years of age 750; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 321, acute lung diseases 200, consumption 321, diphtheria and croup 109, diarrheal diseases 69, measles 63, scarlet fever 20, whooping-cough 21, typhoid fever 26, cerebro-spinal meningitis 6, erysipelas 3.

From typhoid fever Philadelphia 11, New York 5, Boston, and Washington 2 each. Brooklyn, Cleveland, Providence, Worcester, Cambridge and New Bedford 1 each. From whooping-cough New York 9, Brooklyn 4, Philadelphia 3, Boston, Cincinnati, Cleveland, Cambridge and Haverhill 1 each. From scarlet fever New York 8, Boston 3, Cleveland 2, Philadelphia, Brooklyn, Providence, Cambridge, Salem, Haverhill and Everett 1 each. From cerebro-spinal meningitis New York 3, Bos-

ton, Cleveland and Worcester 1 each. From erysipelas New York 2, Philadelphia and Pittsburg 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending June 1st, the death-rate was 17.2. Deaths reported 3,492; acute diseases of the respiratory organs (London) 194, whooping-cough 82, measles 91, diphtheria 69, diarrhea 41, fever 34, scarlet fever 30.

The death-rates ranged from 9.9 in Derby to 28.0 Wolverhamptom, Birmingham 17.4, Bolton 21.4, Brighton 20.1, Cardiff 11.4, Croyden 13.6, Hull 12.3, Leeds 17.5, Leicester 13.7, Liverpool 27.6, London 15.5, Manchester 23 8, Newcastle-on-Tyne 17 9, Nottingham 16.8, Plymouth 21.1, Salford 18.3, Sheffield 19.2, West Ham 14.6.

## OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 15, 1895, TO JUNE 21, 1895.

Leave of absence for two months and twenty-three days to take effect on or about July 6, 1895, is granted FIRST LIEUTENANT WILLIAM F. LEWIS, assistant surgeon.

The leave of absence on surgeon's certificate of disability granted CAPTAIN JAMES E. PILCHER, assistant surgeon, is extended four months, on surgeon's certificate of disability, and permission is given him to go beyond sea.

CAPTAIN GEORGE MCCREERY, assistant surgeon, will be relieved from duty at Fort D. A. Russell, Wyoming, and will report in person to the Commanding Officer, Fort Niobrara, Nebraska, for duty at that post.

Leave of absence for three months, to take effect when he shall be relieved from his present duties, on or about June 30, 1895, is granted CAPTAIN CHARLES RICHARD, assistant surgeon.

Leave of absence for two (2) months, to take effect the latter part of August, 1895, is granted CAPTAIN MARLBOROUGH C. WYETH, assistant surgeon.

## OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 22, 1895.

A. A. HOEHLING, medical director, placed on retired list.

G. W. WOODS, medical inspector, ordered for examination preliminary to promotion to medical director.

G. F. WINSLOW and R. A. MARMION, surgeons, ordered for examination preliminary to promotion to medical inspector.

## OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING JUNE 15, 1895.

GEORGE PURVIANCE, surgeon, relieved from duty at Philadelphia, Pa. (temporarily) and detailed for duty on Board relating to Ford's Theatre disaster, June 8, 1895.

W. A. WHEELER, surgeon, detailed as Chairman Board for physical examination candidates Revenue Cutter Service, June 1, 1895.

S. D. BROOKS, passed assistant surgeon, granted leave of absence for twenty-one days, June 14, 1895.

J. H. WHITE, passed assistant surgeon, detailed Recorder Board for physical examination candidates Revenue Cutter Service, June 1, 1895.

W. J. PETTUS, passed assistant surgeon, granted leave of absence for thirty days, June 6, 1895.

L. E. COFER, assistant surgeon, to inspect unserviceable property at San Diego Quarantine Station, June 12, 1895.

H. S. CUMMING, assistant surgeon, relieved from temporary duty at Boston, Mass., and ordered to rejoin his station at New York, N. Y., June 3, 1895.

## THE THIRD INTERNATIONAL CONGRESS OF PHYSIOLOGISTS.

The Third International Congress of Physiologists will be held in September, 1895, from the 10th to the 14th of the month, at Bern, Switzerland. Professor Kronecker, Director of the Physiological Institute of the University of Bern, has kindly expressed his readiness to afford to Members of the Congress all facilities for demonstration and experiment, as well as for the exhibition of scientific apparatus. It is particularly desirable that those intending to avail themselves of Professor Kronecker's assistance should let him know what their requirements are not later than June 30th.

In connection with the Congress, an Exhibition of Physiological Apparatus will be held. Exhibits may be contributed by all Members of the Congress, by the Directors of Physiological Laboratories, and by makers recommended by any Member of the Congress, or by the Director of a Physiological Laboratory. The exhibition of apparatus will open two days before the Congress, and will close two days after the Congress.

Those intending to be present and to make communications are requested to notify Professor Kronecker, of Bern, or the Secretary for the English Language, before August 1st, giving, if possible, the title of their communications.

Each member of the Congress is required to contribute the sum of ten francs toward defraying the expenses of the Meetings; he will obtain in receipt from the President, Professor Kronecker, a card of membership of the Congress.

C. S. SHERRINGTON,
*General Secretary for the English Language.*

## APPOINTMENT.

DR. EDWIN W. DWIGHT has been appointed by Governor Greenhalge, Assistant to the Commissioners of Public Institutions.

## BOOKS AND PAMPHLETS RECEIVED.

Anti-Choleraic Inoculations in India. By W. M. Haffkine. Reprint. 1895.

Aseptic Prophylaxis of Asiatic Cholera: Arsenization. By Reginald Barkley Leach, M.D., Paris, Texas.

Annual Report of the Board of Health of the City of Worcester, for the year ending November 30, 1894.

Biennial Report of the St. Peter Hospital for Insane at St. Peter, Minn., for the Biennial Period ending July 31, 1894.

Blood Examinations Regarding the Malarial Origin of Zoster. By James M. Winfield, M.D., Brooklyn. Reprinted. 1895.

Transactions of the Antiseptic Club. Reported by Albert Abrams, a Member of the San Francisco Medical Profession. Illustrated. New York: E. B. Treat.

Clinical Lectures on the Prevention of Consumption. Delivered at the Westminster Hospital by William Murrell, M.D., F.R.C.P. London: Baillière, Tindall & Cox. 1895.

The Infectivity of Cancer: A Retrospect and a Forecast. By D'Arcy Power, M.A., M.B. Oxen, F.R.C.S. Eng., Surgeon Victoria Hospital for Children. Reprint with additions. 1895.

A Study of Thirty-nine Cases of Strangulated Hernia. By William Burton DeGarmo, M.D., of New York, Professor of Special Surgery, New York Post-Graduate Medical School and Hospital. Reprint. 1895.

Accentuation of the Pulmonary Second Sound an Important Sign in the Diagnosis of Pericarditis. Some Physiologic Effects of Music on Hypnotized Subjects. By Aldred S. Warthin, Ph.D., M.D., Ann Arbor, Mich. Reprints. 1894-95.

Some Minor Studies in Nerve Cell Degeneration as Presented by a Case of Localized Cerebral Atrophy. A Case of Acute Delirium, with some Considerations on its Pathologic Aspects. By Thomas P. Prout, M.D., Morris Plains, N. J. Reprints. 1894-95.

Dislocation and Double Fracture of the Upper Third of the Humerus. Direct Fixation in Fractures. Typhoid Ulcer; Perforation (?) Operation; Death. Cerebral Cyst; Operation; Recovery. By B. Merrill Ricketts, M.D., Cincinnati, Ohio. Reprints. 1894-5.

System of Surgery. Edited by Frederic S. Dennis, M.D., assisted by John S. Billings, M.D. Vol. I, History of Surgery, Pathology, Bacteriology, Infections, Anesthesia, Fractures and Dislocations, Operative Surgery. Profusely Illustrated. Philadelphia: Lea Brothers & Co. 1895.

The History of the Pennsylvania Hospital, 1751-1895, by Thomas G. Morton, M.D., Fellow of the College of Physicians; President of the Medical Staff and Senior Surgeon of the Pennsylvania Hospital; President of the Philadelphia Academy of Surgery, etc., etc., assisted by Frank Woodbury, M.D., Fellow of the College of Physicians; Honorary Professor of Clinical Medicine in the Medico-Chirurgical College; etc., etc. Publication authorized by the contributors at their annual meeting, May, 1893, and directed by the board of managers. Philadelphia: Times Printing House. 1895.

Text Book of Diseases of the Kidney and Urinary Organs by Professor Dr. Paul Fürbringer, director of the Friedrichain Hospital, Berlin; Royal Medical Councillor and Member of the Royal Medical Council of the Province of Brandenburg; Member of the Imperial Leopold-Caroline Academy ("Leopoldina"); Translated from the German, with Annotations by W. H. Gilbert, M.D., Physician in Baden-Baden; Member of the Congress für Innere Medecin, etc., with commendatory letter from Sir Thomas Grainger Stewart, M.D., F.R.S.E., Physician in ordinary to H. M. the Queen for Scotland; Professor of Practice of Physic and of Clinical Medicine in the University of Edinburgh; etc. Vol. I. London: H. K. Lewis & Co. 1895.